

MARITIME REPORTER

AND
ENGINEERING NEWS

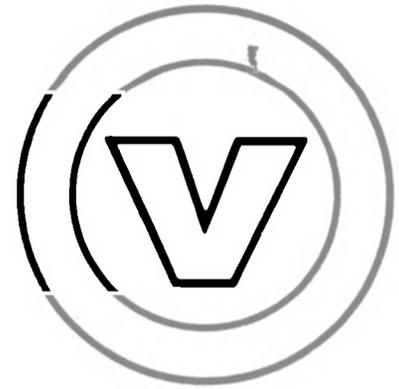
SNAME · EUROPORT · ISOSO

Aerial View Of Manhattan Island

**89th Annual SNAME Meeting
ISOSO '81
Europort '81
(SEE PAGE 4)**

NOVEMBER 1, 1981

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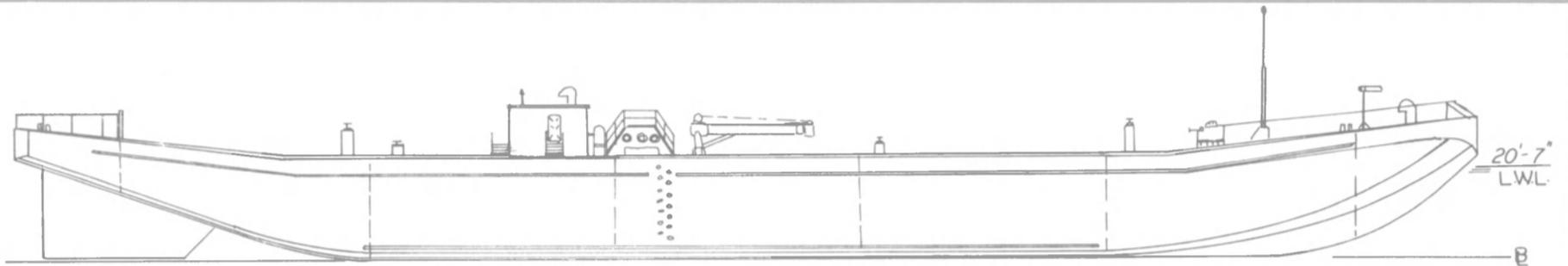
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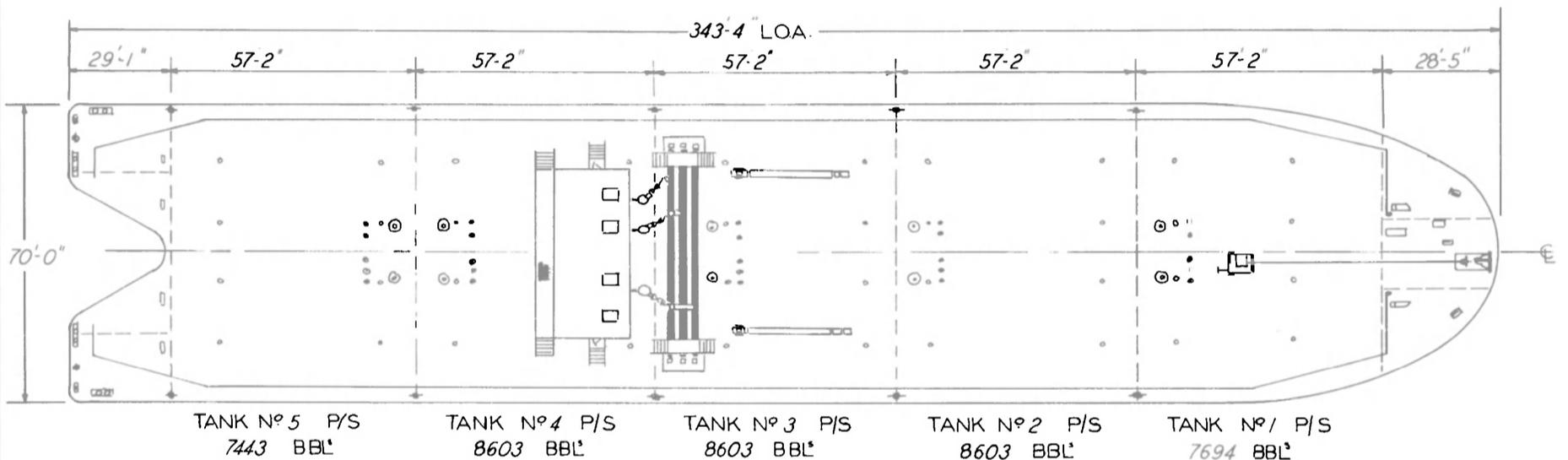
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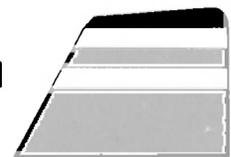
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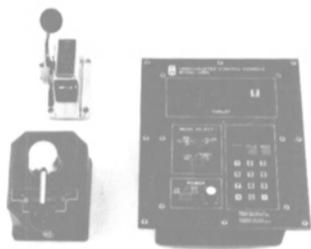


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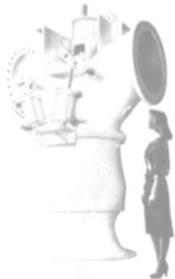
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ON THE COVER

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Great Lakes Towing Promotes Meltzer To Vice President

Great Lakes Towing Company, Cleveland, Ohio, announced the appointment recently of William N. Meltzer as vice president of sales. Mr. Meltzer, who formerly served as sales manager for the company, will continue his responsibility for sales services to the ports on the Great Lakes.

Great Lakes Towing Company, founded in 1899, is the oldest and largest towing company on the Lakes, its 44-vessel fleet serving in all Great Lakes ports.

Deliver Ro/Ro Morant Bay To Jamaican Company

Jamaica Merchant Marine Ltd. recently took delivery of the ro/ro vessel Morant Bay, second of 10 sisterships being built under a five-year development plan.

Constructed by A-S Vaagen Verft Shipyard of Norway, the \$11.5-million vessel can transport 64 forty-foot trailers or 240 twenty-foot units at a speed of 15 knots.

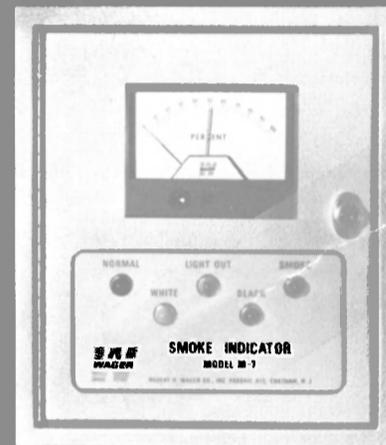
The vessel is time-chartered by Kirk Lanes Shipping Co. and is sailing weekly on the Miami-Kingston-Grand Cayman route.

Approve Title XI Increase For CATUG Being Built

The Maritime Administration has increased its Title XI loan guarantee commitment on an integrated CATUG tug/barge tanker unit owned by Second Tug/Barge Corp. from \$53,782,000 to \$62,790,000.

The increase of \$10,296,000 was caused by additional construction interest on the vessel between the time of MarAd's initial commitment and the closing date of the guarantee agreement. The guarantee covers approximately 87½ percent of the vessel's \$71,761,000 actual cost. The vessel is expected to be delivered in October 1982.

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MARITIME REPORTER AND ENGINEERING NEWS

(USPS 016-750)

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Title XI Approved For \$43-Million Conversion Of Four MorMac Ships

The Maritime Administration has approved in principle an application by Moore McCormack Lines, Inc., a subsidiary of Moore McCormack Resources, Inc., Stamford, Conn., for a Title XI guarantee to aid in financing the reconditioning and reconstruction of the Mormacvega, Mormaclynx, Mormacargo and Mormacrigel.

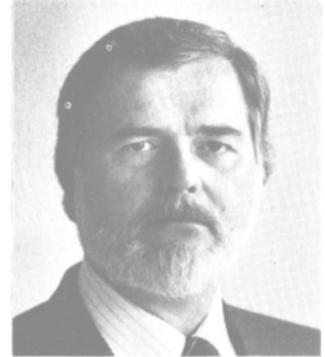
The Maritime Subsidy Board previously approved a construction-differential subsidy (CDS) for the project.

All four of the 11,975-dwt Constellation-class vessels were built by Ingalls Shipbuilding Corp., Pascagoula, Miss., and were delivered in 1964 and 1965. They will be lengthened by the inclusion of a new 115-foot cellular midbody section which will have three electro-hydraulic, 40-ton cranes for handling containers. The number 3 hatch will be con-

verted for containers in cells and provision will be made to carry containers four high at both and number 5 and 6 hatches.

The Title XI guarantee covers \$32,516,000 (\$8,129,000 per ship) or approximately 75 percent of the estimated actual cost (net of CDS) of \$43,359,188 (\$10,839,797 per ship). American Shipbuilding Co., Lorain, Ohio, is expected to do the reconstruction work. All four vessels are scheduled to be delivered by December 1982.

Appoint Daniel Rogers Marketing Manager At Zidell's Marine Division



Daniel R. Rogers

Daniel R. Rogers has been appointed marketing manager for the marine division of Zidell Explorations, Inc., Portland, Ore.

Thomas A. Sherwood, division manager, said Mr. Rogers brings to the newly created position more than 24 years of experience in the marine industry, primarily in sales and contract management.

Prior to joining Zidell, Mr. Rogers was contracts manager for FMC Corporation's Marine and Rail Equipment Division, also located in Portland.

In his new position, Mr. Rogers will be responsible for new vessel sales and leasing, servicing of current contracts and coordination of ship repair activities.

Zidell is a long-established marine repair and construction company located on the Willamette River. It builds barges of all types for sale or lease, and operates extensive repair facilities for ships and barges in two drydocks and large-scale ship fitting areas. Zidell Marine Corporation, Tacoma, Wash., is a member of the Zidell family of companies.

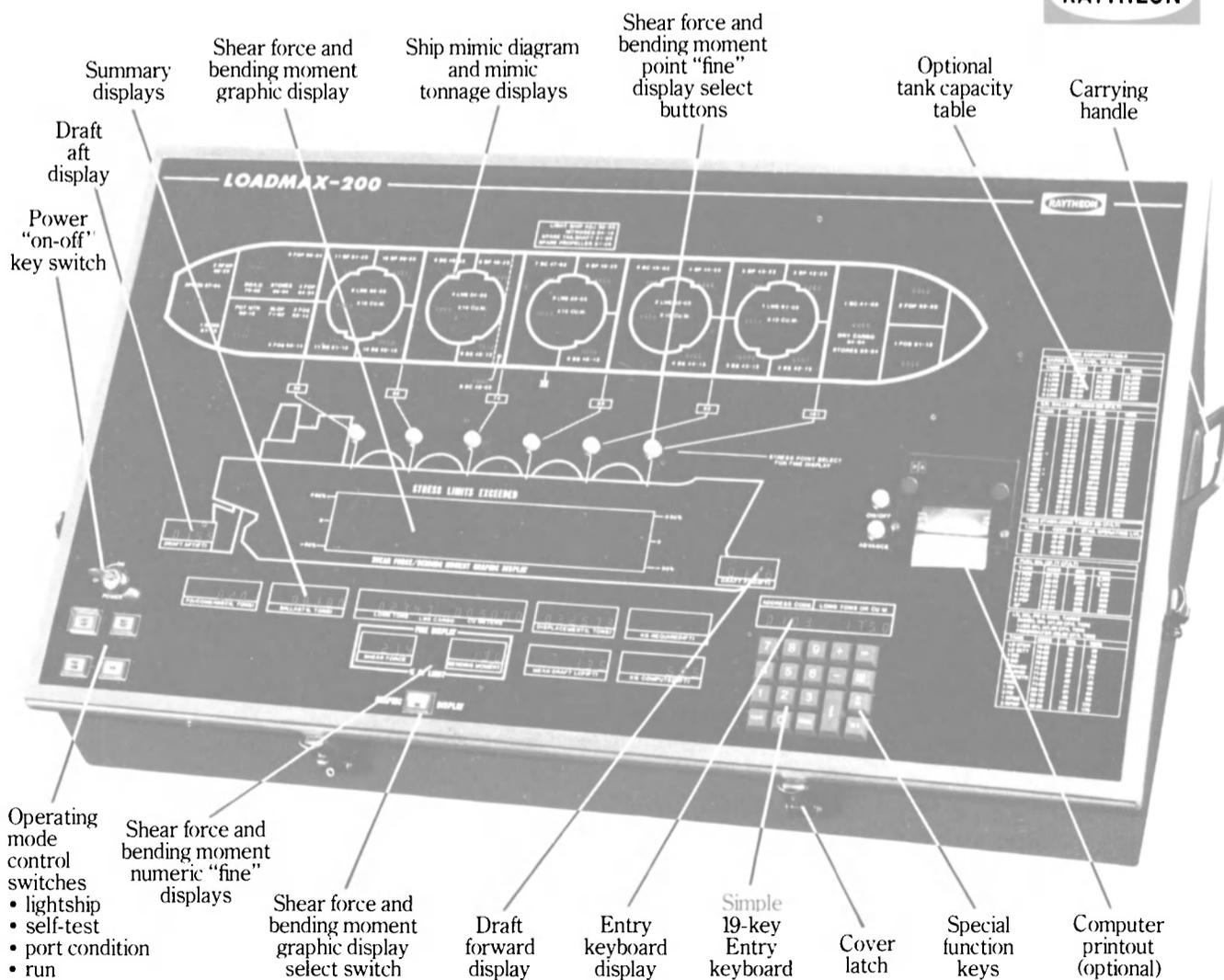
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Color Brochures Describe Riverway Shipyard Facilities And Products

A package of full-color brochures and data sheets is available at no cost from Riverway Shipyard Co. of Grafton, Ill. The booklets contain a complete description of all services available at Riverway and marine equipment manufactured by the yard. Full-color pictures and text cover new construction of towboats, deck barges, tank barges, work flats, drydocks, ferry barges, and rigging barges. A 24-hour repair service for towboats and barges is pictured and described. Another brochure covers deck fittings manufactured by Riverway including barge covers, latching devices, lifting rings and locking pin boxes.

A schedule of rates for marine repair is included, along with a series of pictures of vessels and drydocks produced at Riverway.

For a free Riverway brochure package,

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Trinidad Corp. Awards Contract To MTA For Steering Modifications

Marine Technical Associates (MTA) of Little Falls, N.J., recently announced that the Trinidad Corporation has awarded them a contract to survey, recommend, engineer and provide hardware for steering modifications necessary to meet the new U.S. Coast Guard regulations and IMCO recommendations.

For complete information on MTA's line of equipment and services,

Write 56 on Reader Service Card

Joint Venture Formed By Tampa Barge Services And ADG Marine Coatings

Tampa Barge Services of Tampa, Fla., and ADG Marine Coatings, also of Tampa, have announced the formation of a joint venture to better serve the maritime industry in the field of tank blasting and coating.

Astilleros Del Golfo Marine Coatings has had long experience in this most exacting process at their installation in Tampico, Mexico, and now with the cooperation of Tampa Barge Services, ADG is ready to continue its fine work in an area where the weather is the best friend of the blaster and coater, namely Tampa.

Product Brochure Published By Patent Scaffolding Co.

An eight-page, full-color brochure was published recently by Patent Scaffolding Co., Fort Lee, N.J., a division of Harsco Corp. It describes and illustrates the types of scaffolding, shoring, forming, and other related construction equipment the company provides.

A list of the network of 30 branch companies in the U.S., Canada, Puerto Rico, Mexico, and Saudi Arabia are also included. The folder describes the specifications and applications of stationary shoring systems, flying shoring systems, interform® aluminum wall forming system, and modular panel formwork system.

For a free copy of the brochure,
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NSL Expands Container Capacity Of Ro/Ro Ships

Newfoundland Steamships Limited (NSL) recently announced that its ro/ro containerships Cabot and Chimo are being modified to accommodate a total of 100 TEUs (20-foot equivalent units) each of container space on their twice-weekly sailings to St. John's and Corner Brook, Newfoundland.

The Chimo, which presently accommodates 60 TEUs, is being increased to 100 TEUs through the addition of 18 20-foot container slots below deck and 22 spaces on deck. The Cabot, which previously carried 80 TEUs has

already been modified with the addition of 20 more 20-foot spaces on deck. Production at both NSL terminals at Montreal, Canada, and St. John's has recently been improved through the purchase of two shore cranes of a new high-production design ordered from American Hoist. These cranes were acquired at a cost of \$1 million each and went into operation this summer.

Elect Gardner Chairman Of Jacksonville Port Authority

C. Randal Gardner, business manager for Plumbers and Steamfitters Local 234, was recently elected chairman of the Jacksonville, Fla., Port Authority by the seven-member governing body. He succeeds C. Herman Terry, whose term expired on September 30.

Mr. Gardner has been a board member since 1974, when he was appointed by then Governor Reubin Askew. Four JPA board members are appointed to renewable four-year terms by the Governor, and three by the Mayor of Jacksonville. The members serve without pay. The JPA owns and operates two deepwater marine terminals and three airports in Jacksonville.



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October 1981

Nav-Com Moves To New Facility

Effective November 1, 1981, Nav-Com Incorporated, a marine electronics system company, has begun operations from its new headquarters in Deer Park, N.Y., according to the company's executive vice president Jack Provenzano.

The new building provides a substantial increase in space and improved facilities, thus allowing Nav-Com to keep pace with the rapid growth of its customers' requirements. To assure a smooth transition, telephone and telex number remain unchanged.



Nav-Com's new, larger headquarters building in Deer Park, N.Y.

Nav-Com Incorporated specializes in the sales, installation, and service support of electronic communication and navigation equipment on ships with particular emphasis on customized systems. The new facility will house the administration, marketing, engineering, service, and production departments. In addition, training and support facilities will be available for Magnavox Satellite Communications and Navigation products, Harris HF/ARQ systems, and Kockumation Loadmaster and Levelgauging systems.

For further information, contact Nav-Com Incorporated at 9 Brandywine Drive, Deer Park, N.Y. 11729, telephone (516) 667-7710, Telex 645744 NAVCOM NY DEER.

Issue Call For Papers For SNAME Ship Costs & Energy Symposium

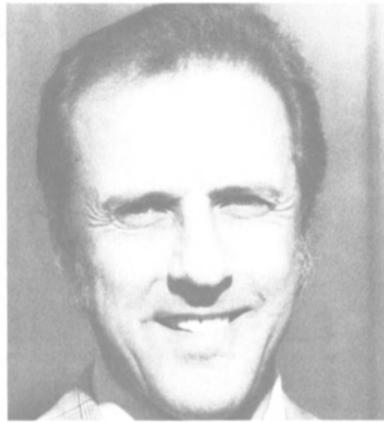
The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers has issued a call for papers for a symposium on ship costs and shipboard energy that the section will conduct in conjunction with T&R Panel 0-36 — Economic Analysis of Marine Transportation. The symposium will be held September 30 and October 1, 1982, at the Waldorf-Astoria Hotel in New York City.

According to Richard J. Baumler and David A. O'Neil, symposium cochairmen, the ship cost portion of the symposium will be concerned with shipbuilding and operating costs and the energy portion will concentrate on the technical aspects, with or without detailed financial ramifications.

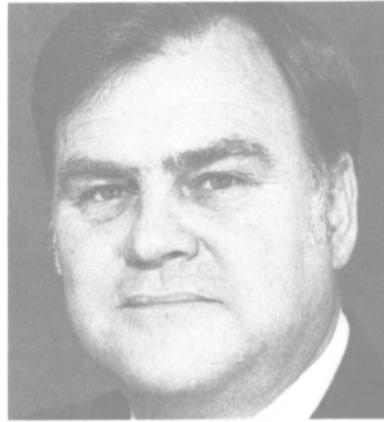
Deadline for submission of abstracts is November 15, 1981, and January 15, 1982 is the date for notification of acceptance. Late submittals from overseas will be considered beyond November 15, noted Neil Reddy, chairman of the SNAME Metropolitan Section. Abstracts are to be sent to Alexander C. Landsburg, 307 Williamsburg Drive, Silver Springs, Md. 20901.

Typical subject areas for ship costs include shipbuilding cost estimates, ship operating costs, and U.S. versus foreign costs and subsidies. Typical energy topics would include resistance and propulsion techniques, fuels, and coal-fired boilers. Subjects such as computer aids, and approaches and techniques from other industries would be applicable to both areas.

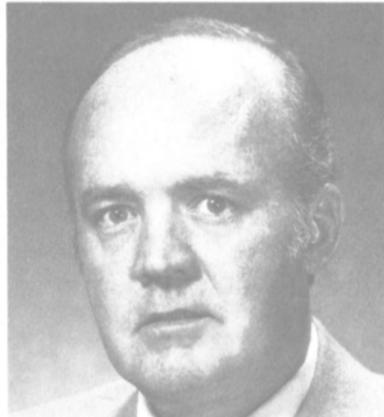
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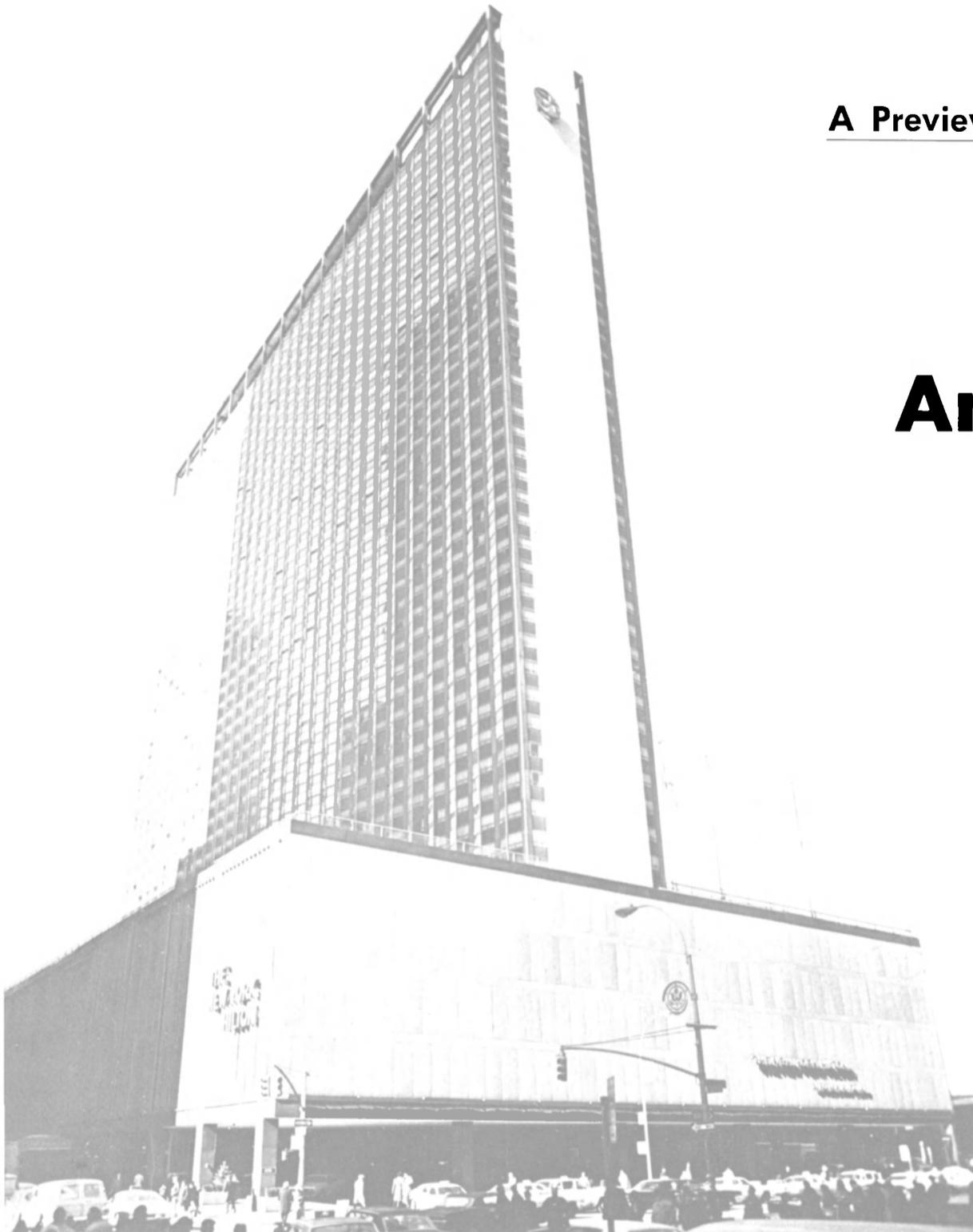
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A Preview Of The

89th SNAME Annual Meeting

The 89th Annual Meeting of The Society of Naval Architects and Marine Engineers will convene at The New York Hilton Hotel, New York, N.Y. on November 19-21, 1981. "This is by far the Society's largest annual event," stated **John J. Nachtsheim**, president of the Society, "with more than 1,000 people from all segments of the maritime industry gathering to hear the technical presentations."

At the simultaneous technical sessions on November 19 and 20, 14 papers will be presented with subjects of enough variety to interest all the attendees.

President **Nachtsheim** will give his annual address at the President's Luncheon in the Grand Ballroom on Thursday, November 19. Featured on the program will be the presentation of several important awards. Later that afternoon, at 4:00 pm, the annual Business Session will be held, where the members will act on proposed amendments to the Society's By-laws and other business that may come before the meeting.

On Friday evening, November 20, the Annual Banquet will take place in the Grand Ballroom with **Mr. Nachtsheim** presiding. This is the most traditional part of the Annual Meeting, where the Society's highest awards are presented. The banquet speaker will be the Hon. **John F. Lehman Jr.**, Secretary of the Navy.

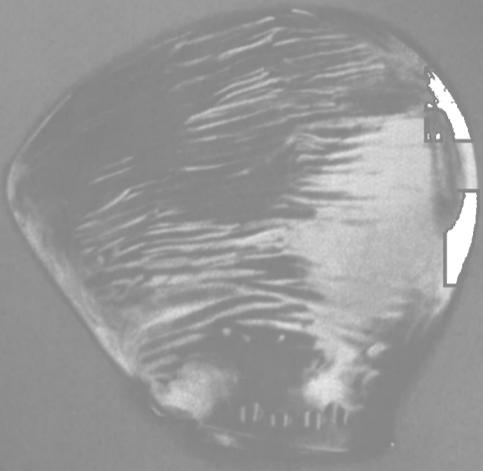
The David W. Taylor Medal "for notable achievement in naval architecture and marine engineering" will be awarded to **Erwin Carl Rohde**, manager, Operation Planning and Technical Resources, Industrial and Marine Turbine Division of the General Electric Company, Lynn, Mass. The Vice Admiral "Jerry" Land Medal "for outstanding accomplishment in the marine field" will be given to **Ellsworth Peterson**, president, general manager (continued on page 12)

TECHNICAL MEETING SCHEDULE

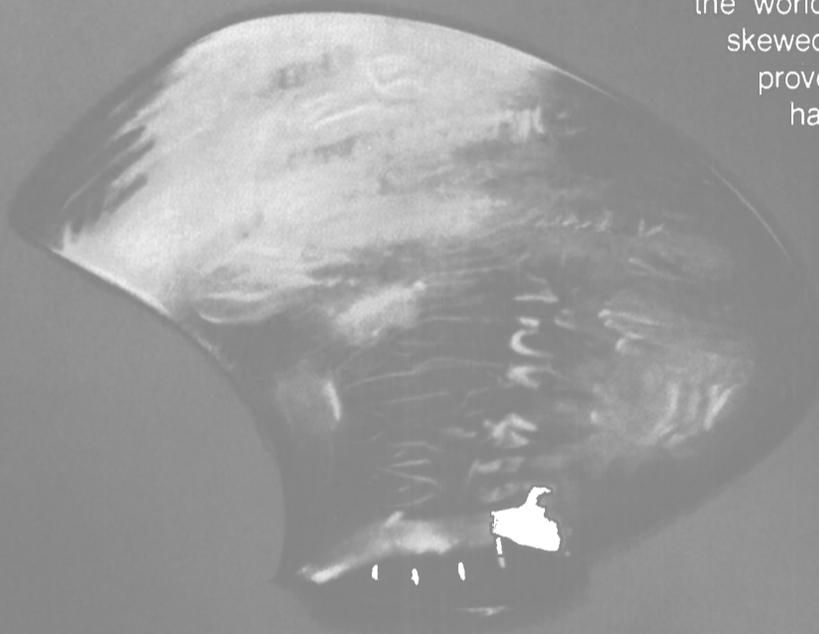
Time	THURSDAY		FRIDAY	
	Trianon Room	Mercury Room	Trianon Room	Mercury Room
9:00	1. Investigation of a new Inland Waterway Shipform	3. Risk and Operability Analysis in the Marine Environment	7. Application of Plastic Analysis to USCG Icebreaker Shell Plating	9. Estimating Technical and Economic Penalties of Roughness
10:30	2. Liquid Bulk Carrier Inert Gas and Ventilation Systems	4. Revival of the Coastal Tanker: Development and Construction	8. Applying a Computer-Aided Ship Structural Design Method	10. Development and Experience of Novel Integrated Duct Propeller
2:00			11. Hull/Machinery Foundation Incompatibility	13. Hydrodynamic Added-Mass Matrix of Vibrating Ship . . .
2:30	5. Major Factors in Frigate Design	6. Dynamic and Hydrodynamics of Surface-Effect Ships		
3:30				12. Coal-Fired Fluidized-Bed Steam Generator for Marine . . .
4:00	Business Session			

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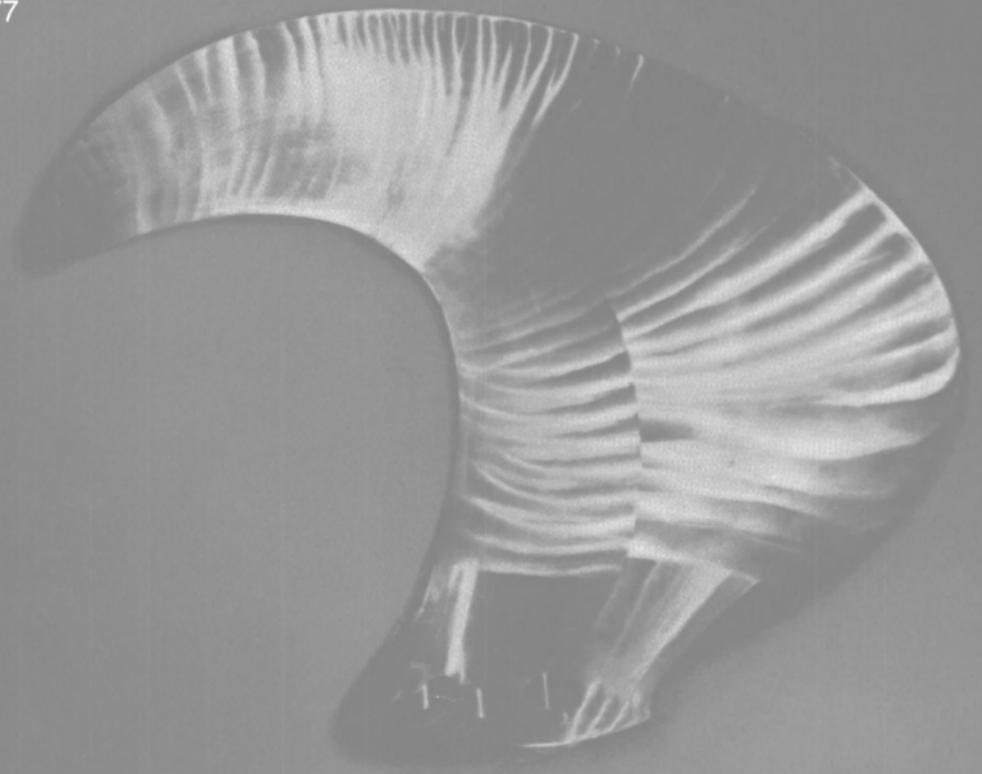


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**89th SNAME
Annual Meeting
—A Preview**

(continued from page 10)

and treasurer of Peterson Builders, Inc., Sturgeon Bay, Wis.

On Saturday night, the Grand Ballroom will be the setting for

the annual Dinner Dance, a fitting conclusion to the Annual Meeting.

Technical Papers

(See table for time and place)

Paper No. 1. "Investigation of a New Inland Waterway Shipform" by **Hsueh Chung-chuan, Wang Zhi-fa, Li Ru-zhen, Tao Mei-fang and Cheng Zhen-zhong.**

SYNOPSIS—The authors describe a new shipform having a flat bow and cochlea-channeled stern, which is a development and skillful combination of a "flat bow" form of ancient China and a "cochlea-channeled stern" form developed by **Giovanni B. Tommasi** in the 1970s. Results from comparative tests on the ship models are presented. The

influence of the bow and stern on the ship performance is discussed; the abnormal phenomena observed are analyzed, and theoretical inferences are made. Also treated is the first full-scale ship's trial trip.

Paper No. 2. "Design and Operational Considerations for Liquid Bulk Carrier Inert Gas and Ventilation Systems to Provide Safe Tank Gas Concentrations" by **Robert L. Bass III, Thomas B. Morrow and Raymond J. Magott.**

SYNOPSIS—This paper gives the results of a study of inert gas take-off designs and ship tank gas exchange methodology. Scale model tests of shipboard uptakes to assess the effect of take-off location and the ratio of inert gas to flue gas flowrate on inert gas quality are presented. Also included are tank gas exchange tests performed at sea onboard a 390,000-dwt crude oil carrier.

Paper No. 3. "Risk and Operability Analysis in the Marine Environment" by **Bruce L. Hutchison.**

SYNOPSIS—A method is presented for developing the probability distribution for failure and operability functions. The technique discussed can be applied to systems operating in spatially- and time-varying wave climatologies, and subject to the favorable influence of seamanship actions. The paper discusses motivation and applications, traces the development of concepts, outlines detailed procedures and concludes with actual examples.

Paper No. 4. "Revival of the Coastal Tanker: Development and Construction of a U.S.-Flag 2,500-dwt Product Carrier" by **Joseph D. Mazzei and Rudolph G. Terry.**

SYNOPSIS—The Northern Sun, a 2,500-dwt coastal tanker, was constructed in a conscious departure from tug and tank-barge operation. Operating experience with both small harbor tankers and tug/barge fleets, together with recognition of modern technology and reduced manning potential on ships, formed the basis for a decision to rethink vessel acquisition for waterborne intercoastal petroleum products distribution.

Paper No. 5. "Major Factors in Frigate Design" by **William H. Garzke Jr. and George Kerr.**

SYNOPSIS—This paper identifies the major factors in frigate design and offers several designs as examples of how these affect a ship's size, cost and performance. Some of the major determinants of frigate size and cost discussed in this paper include: choice of propulsion plant; maximum sustained speed, cruising

(continued on page 15)

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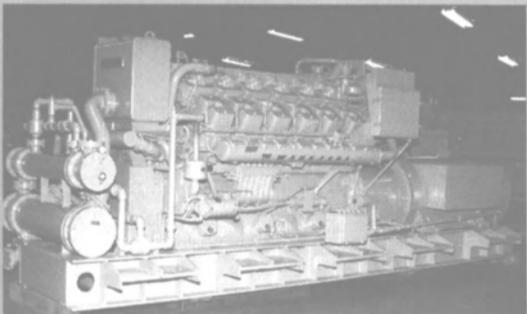
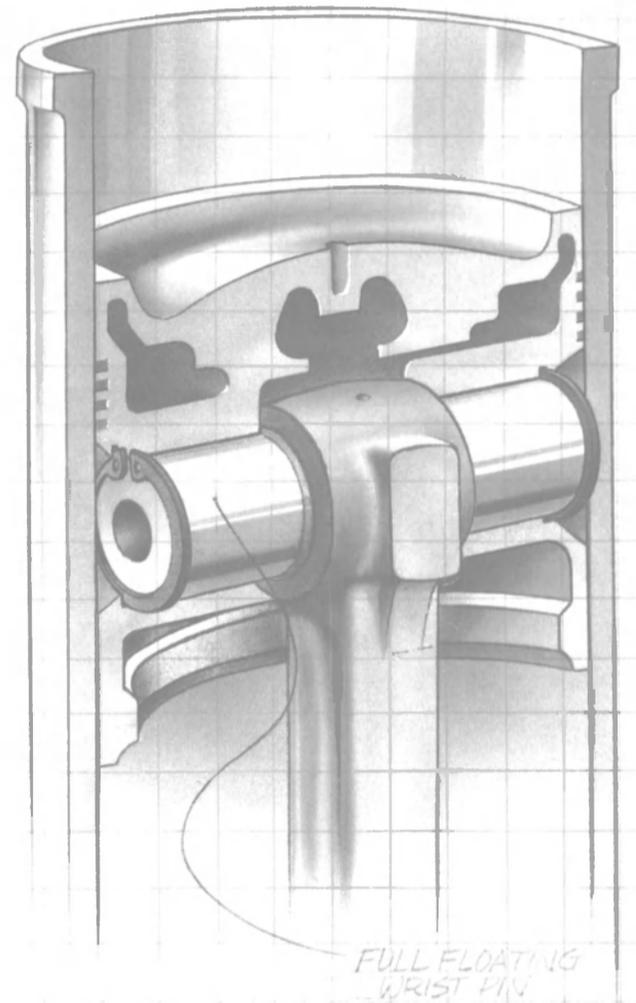
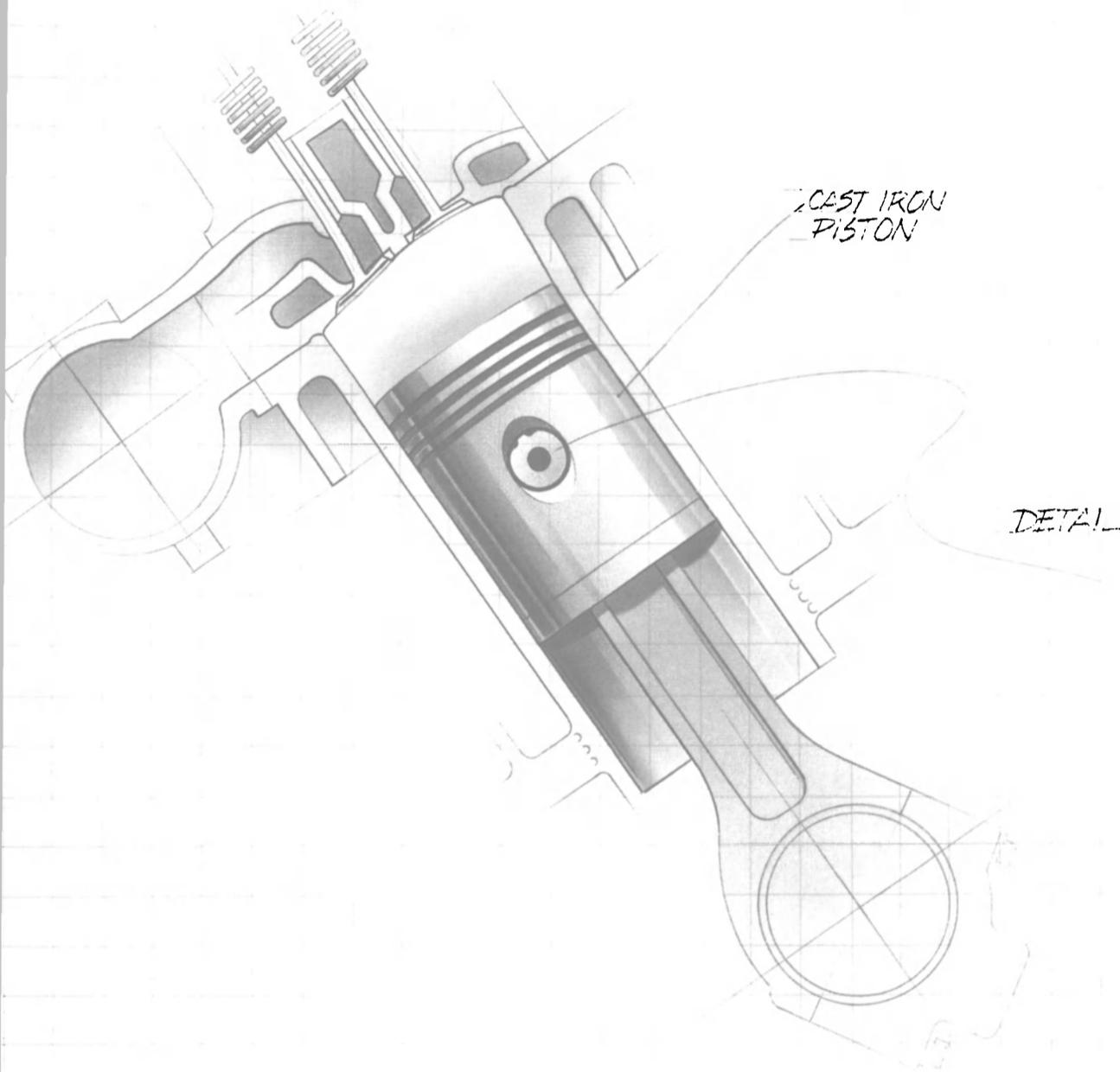
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Overall, cast iron pistons reduce the chance of major engine breakdown.

Waukesha cast iron pistons are connected to forged connecting rods by full floating wrist pins. Wear is more evenly distributed and extended than with semi-floating or stationary pins.

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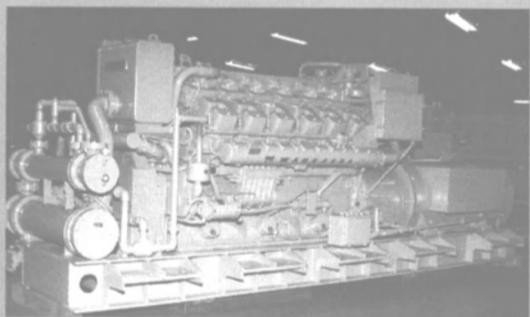
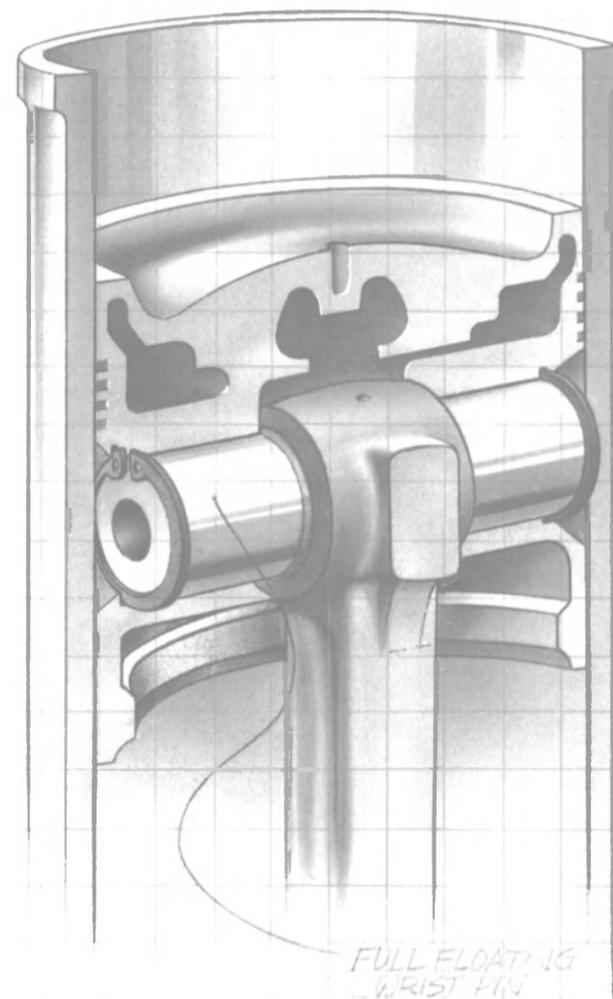
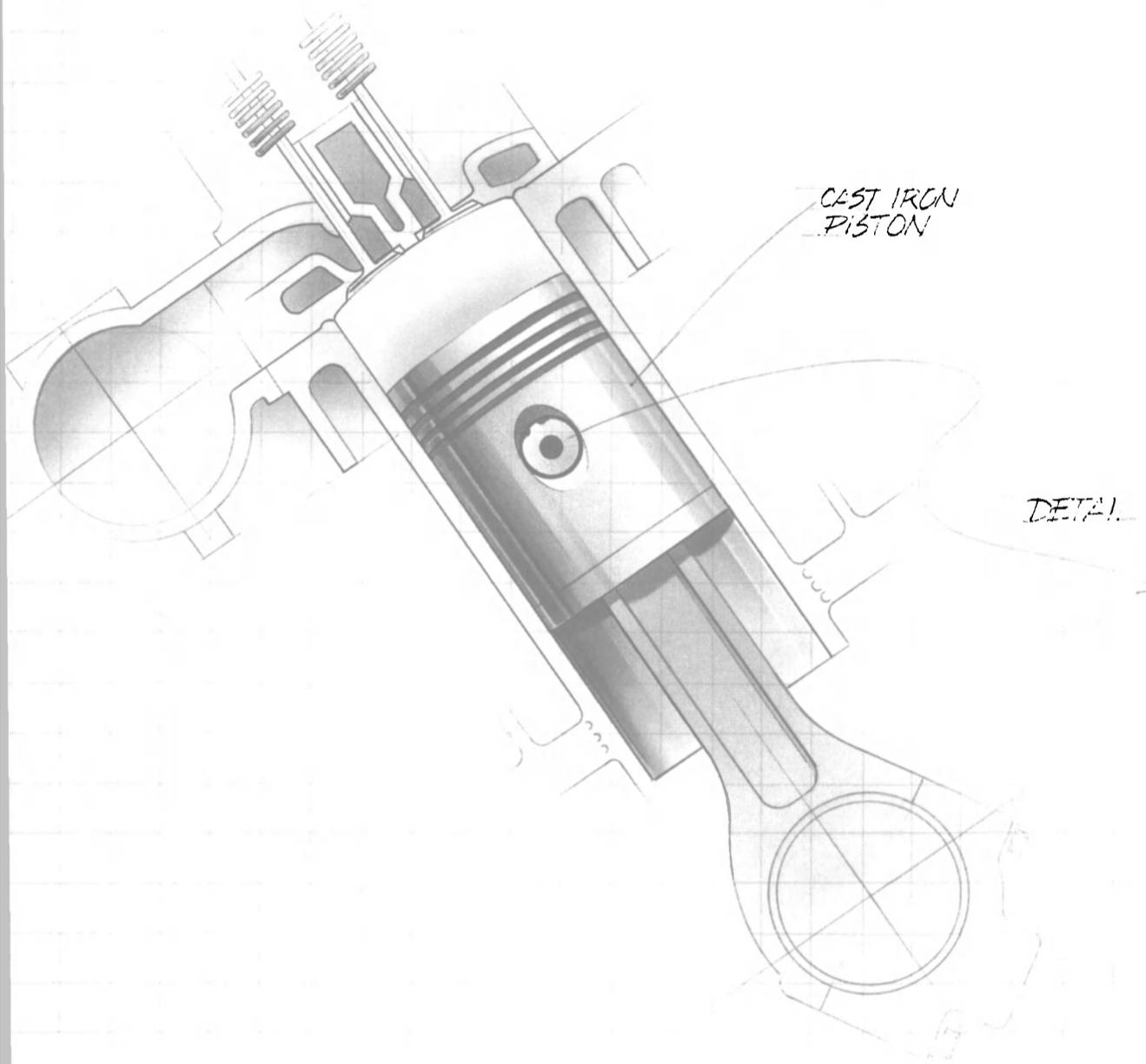
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**89th SNAME
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—A Preview**

(continued from page 12)

speed and endurance; type and number of helicopters carried, and choice of weapons system and their associated electronics. Effects of these and other "major drivers" are illustrated by using variants of FFG 7.

Paper No. 6. "Dynamics and Hydrodynamics of Surface-Effect Ships" by **Paul Kaplan, James Bentson and Sydney Davis.**

SYNOPSIS—A description is given of the importance of dynamics problems and their influence on performance and design of surface-effect ships (SES). Problems of scaling model motions, as well as relations between analysis and test data, are described for seakeeping, maneuverability and control requirements for this class of ship. Correlation between theory and experiment is provided as the basis of using computer simulation predictions for full-scale design of large SES craft.

Paper No. 7. "Application of Plastic Analysis to U.S. Coast Guard Icebreaker Shell Plating" by **Richard Chiu, Eugene Haciski and Paul Hirsimaki.**

SYNOPSIS—This paper applies plastic analysis to icebreaker shell plating by two methods: idealized three-hinge plastic analysis, and non-linear finite element study. Past U.S. Coast Guard icebreaker structural design practice is reviewed and damage histories are discussed. Based on the two approaches to plasticity, a design method relating permanent set-in-steel icebelt plating to panel loading is presented.

Paper No. 8. "Application of a Computer-Aided, Optimal Preliminary Ship Structural Design Method" by **Donald Liu, Owen Hughes and John Mahowald.**

SYNOPSIS—The authors present the capabilities of the SHIP-OPT computer program for use in assessing overall structural adequacy and/or developing preliminary ship structural designs, which are optimal in terms of a user specified objective such as least initial cost. The general program philosophy is discussed and two design examples are given: a segregated ballast tanker, and a double-bottom bulk carrier.

Paper No. 9. "Estimating the Technical and Economic Penalties of Hull and Propeller Roughness" by **Robert L. Townsin, David Byrne, Tor E. Svensen and Alex Milne.**

SYNOPSIS—The monitored speed-power performance of two

containerships are interpreted in terms of their roughness histories. Hull surface damage penalties and texture parameters are discussed, a code of practice for hull surface measurements and presentation is offered. Propeller roughness measurements are provided with the calculation of drag increase effects. A techno-economic model of the containerships

provides economic comparisons between various bottom maintenance schemes.

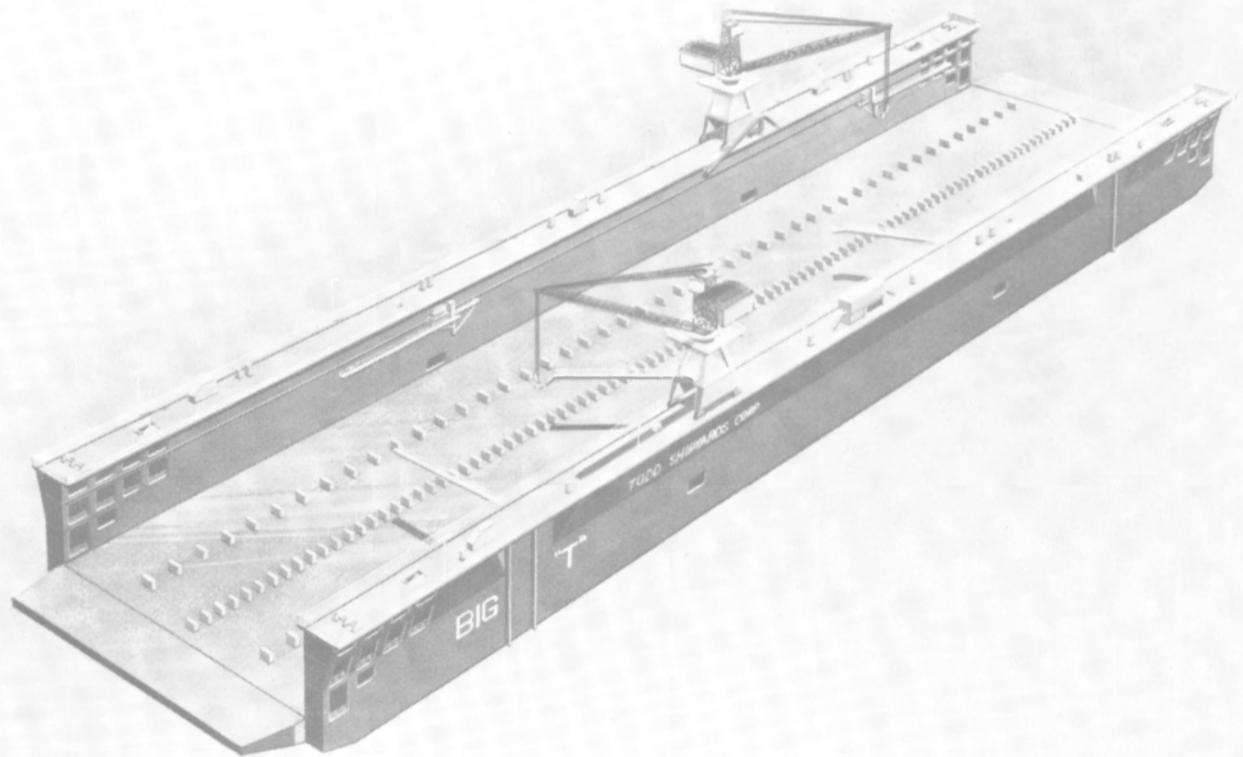
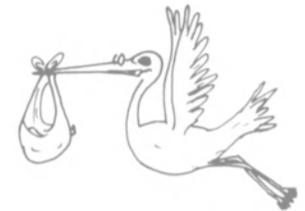
Paper No. 10. "Development and Full-Scale Experiences of a Novel Integrated Duct Propeller" by **H. Narita, H. Yagi, H.D. Johnson and L.R. Breves.**

SYNOPSIS—A new propulsion system, the Mitsui Integrated

Duct Propeller (MIDP), has been developed for reducing fuel consumption. The MIDP utilizes a duct mounted forward of the propeller. The MIDP hydrodynamic features and trial results of the 250,000-dwt tanker Esso Copenhagen with and without MIDP are described in this paper. Also

(continued on page 16)

WE'RE EXPECTING A NEW ARRIVAL.



A new steel "super" dry dock will arrive at the Galveston Division of Todd Shipyards Corporation early in 1982, to service ships of almost all sizes and types including offshore drill rigs.

The new arrival will be 853 ft. long and 164 ft. between wingwalls, with a lifting capacity of approximately 40,000 tons for ships up to 225,000 dwt. It will be equipped with four travelling dock arms fitted for high pressure waterblasting; two wingwall cranes, each with 35 ton lifting capacity; and such pollution control features as oily water tanks, sewage treatment plant and a flush pontoon deck.

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**89th SNAME
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—A Preview**

(continued from page 15)

included are voyage data analysis of other MIDP's.

Paper No. 11. "Hull/Machinery

Foundation Incompatibility" by William I.H. Budd, Shashank V. Karve, Donald Liu, Joao G. de Oliveira and Paul C. Xirouchakis.

SYNOPSIS—The authors deal with the problem of compatibility between hull deflections and distortion limits imposed by the operational requirements of the main propulsion machinery components. They evaluate the relationship between manufacturer's

requirements and the structural design of machinery foundations. Presented are a set of recommendations capable of helping the designer meet the requirements of foundation stiffness. Also included are suggested methods and techniques of structural analysis and design to assist the designer.

Paper No. 12. "A Coal-Fired Fluidized-Bed Steam Generator

for Marine Application" by J.T. Schroppe and R.L. Gamble.

SYNOPSIS — The fluidized-bed combustion process is described and its application to steam generators is shown through the description of demonstration projects. A preliminary design for a marine coal-fired fluidized-bed steam generator and the associated system arrangement is shown and described. The system presented can provide for efficient coal-fired propulsion while meeting expected emissions control requirements.

Paper No. 13. "Hydrodynamic Added-Mass Matrix of Vibrating Ship Based on a Distribution of Hull Surface Sources" by William S. Vorus and Schelte Hylarides.

SYNOPSIS — This paper presents a matrix formulation for ship vibratory added-mass based on the source distribution method. For example, the method is applied to a Series 60 hull. The added-mass matrix developed is used in a comparison with the Lewis J-Factor method for one-dimension ship vibration.

Paper No. 14. "Effects of Hull and Propeller Design Changes on the Vibration of a Lakes Freighter" by F. Everett Reed, Noel L. Bassett and John A. Norton.

SYNOPSIS—This paper reports on actions to reduce the vibration on the Charles E. Wilson. A flow-control tunnel was fitted on the original ship. Later, highly skewed blades were fitted to the original controllable-pitch propeller hub. Vibration levels associated with each change, and model, full scale and calculated hull pressures in the flow-control tunnel are reported.



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**SNAME To Sponsor
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SNAME has something different in store for the 1982 annual meeting—the organization's 90th.

The society will sponsor an "International Maritime Exposition" to be held in conjunction with the highly acclaimed technical program. It is the first time the prestigious society has opened its doors to exhibitors.

The exhibition will be held at the same site as the annual meeting—the New York Hilton Hotel, on November 17 through 19, 1982. For more information on exhibit space for marine product manufacturers, suppliers, and service firms,

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**Capt. Cunningham Named
Financial Manager At
USCG Yard, Curtis Bay**



David Cunningham

Capt. David Cunningham recently reported to the Coast Guard yard in Curtis Bay, Md. He will serve as the yard's manager of financial operations, a position which oversees the shipyard's fiscal, supply and procurement activities, as well as the ships' inventory control point. The latter is an operation which provides supply service to the Coast Guard fleet worldwide.

The captain comes to the yard from the 13th Coast Guard District, Seattle, Wash., where he served as the commanding officer of the cutter Campbell. Previous sea duty included service aboard the cutters Castle Rock, Cape Horn, Alert and Sherman.

Captain Cunningham's shore unit assignments covered positions such as commanding officer of the Coast Guard's Loran station, Guam, supply officer and comptroller of the 9th Coast Guard District, Cleveland, Ohio, and data processing and procurement positions at Coast Guard headquarters.

**\$3.8-Million Navy Drydock
Contract Awarded To
Two Engineering Firms**

Century Engineers and Piedmont Engineers, a joint venture of Towson, Md., have been awarded a \$3,822,285 fixed price contract for architect/engineering services in the design of a drydock at the Naval Submarine Support Base, Kings Bay, Kingsland, Ga. Work will be performed in Towson, Md., and Greenville, S.C. The Naval Facilities Engineering Command, TRIDENT, is the contracting activity. (N68-248-81-C-0119)

**Dedicate Computerized
Management System
For Port Terminals**

A Marine Terminal Automated Management System (MTAMS), financed in part by the Maritime Administration, was dedicated recently by MarAd's western region director, Thomas J. Patterson, at the Seventh Street Public Container Terminal, Port of Oakland, Calif.

The MTAMS is part of a MarAd program to encourage the use of automated information and

control systems at U.S. public, multi-user marine terminals. The system speeds the collection and dissemination of information and thereby expedites the flow of containerized cargo and equipment through a terminal.

ARINC Research of Annapolis, Md., in cooperation with the staff of the Marine Terminals Corp., designed the system for the Oakland facility. MarAd's share of the \$925,000 project amounted to

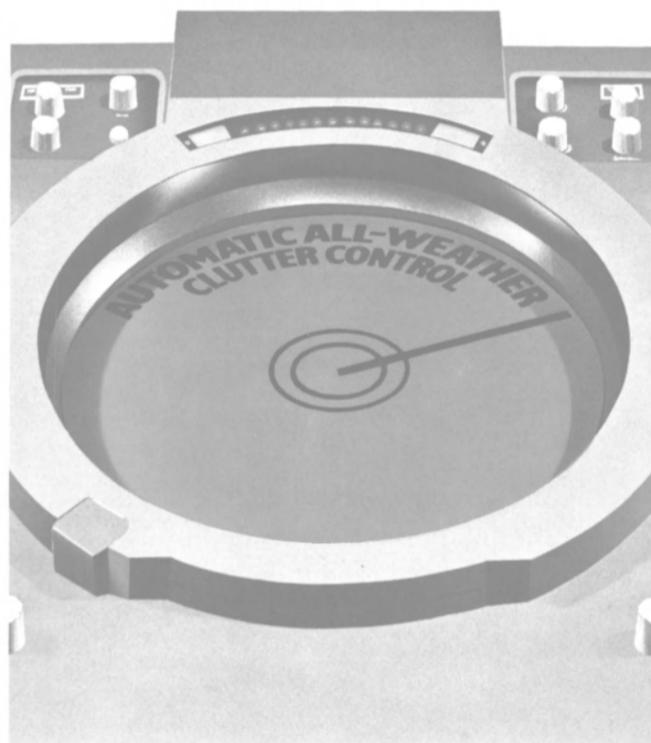
approximately \$325,000. The Federal agency developed the computer application software and documentation, including a cost-benefit analysis. The Port of Oakland and Marine Terminals Corp., the facility's manager, spent \$600,000 for the acquisition of the computer hardware and site preparation activities associated with the installation of the system.

A report on the project, "Ma-

rine Terminal Automated Management Control System for Public Marine Terminals, Phase I & II," will be published for distribution through the National Technical Information Service.

The application software and documentation developed by ARINC Research under contract to MarAd will be made available exclusively to the U.S. port industry, with adaptation costs borne by the user.

Four clear reasons why Racal-Decca's





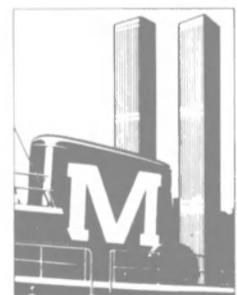
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McAllister Brothers Is New Name For Baker-Whiteley Towing

The name of the Baker-Whiteley Towing Company, which has been synonymous with the Port of Baltimore since 1878, was changed recently to that of its owners, McAllister Brothers, Inc.

Another change will be the painting of their fleet to correspond with the well-known colors and stack insignia of the McAllister fleets in the other ports of the world where they operate.

Since acquiring the Baker-Whiteley organization, McAllister has added two tugs to the Baltimore fleet, one of which is the 3,000-hp Grace McAllister. These additions have increased the company's ability to handle the largest ships calling at the Port of Baltimore.

Capt. Thomas J. Murphy Jr., president of the Baker-Whiteley Towing Company, will continue to be in charge of the Baltimore office as a vice president of McAllister Brothers, Inc.

Roof To Sales Manager At Paducah Marine Ways



Louis Roof

Paducah Marine Ways has announced the promotion of Louis Roof to manager of sales, according to James Causey, general manager of the facility. Mr. Roof will develop additional repair business, direct customer relations, including assisting in resolution of customer concerns, and coordinate the billing process.

Mr. Roof, a 26-year employee of Paducah Marine Ways, has worked in virtually every department, most recently serving as repair manager.

Tracor Publishes Paper On Navigation System —Copies Available

Tracor Omega navigation systems are proving themselves on more than 2,000 vessels worldwide. A new paper is offered by Tracor Instruments, Austin, Texas, describing the applications and unique advantages Omega offers to the big ship navigator, fisherman, and pleasure boat cruiser or sailor.

Entitled "Tracor Omega — A Success Story," the paper provides excellent insights on the value of Omega.

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IMM To Install New GE Turbine Package At Offshore Installation

International Moorings & Marine, Inc. of New Iberia, La., has been awarded a contract by Michigan Wisconsin Pipeline Company for an addition to its offshore compressor station at Eugene Island Block 188-B.

The project involves the in-

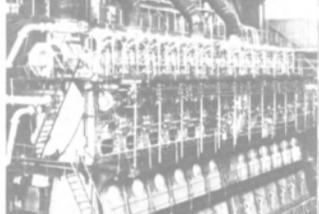
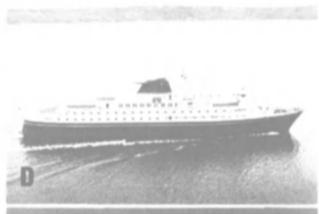
stallation of a new 25,000-horsepower General Electric Turbine package. IMM will utilize two of its jackup boats as work platforms and living accommodations for approximately 65 workmen as well as its 130-foot construction support vessel. Transporting and setting the 450-ton compressor package onto the platform will be done by Heerema Group, U.S.A. under subcontract to IMM. Fabrication of interconnecting

pipings and associated material has been completed at IMM's Fabrication Yard located at the Port of Iberia.

Charles Mann, chairman of the board of directors of International Moorings & Marine, Inc., stated that this project is indicative of the total service offered by IMM, which includes onshore fabrication, offshore installation, and logistical support.

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ment and broken hold-down bolts . . . leading to severe damage to crankshafts, crankcases and bearings.

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7 installation time for even the largest marine main propulsion diesels is measured in hours . . . not weeks.

8 also proven in worldwide service under a complete range of auxiliary machinery.

Clockwise from lower left: (A) 25,000 hp, 12-cylinder B&W marine engine, weighing 1400 tons, is typical of engines installed on CHOCKFAST. Typical marine installations include (B) Indiana Harbor, (C) Apache, (D) M/V Columbia, (E) M.S. Rodin, (F) G.R. Moir, (G) Golden Med, (H) Concordia, (I) Tor Britannia, (J) Viking Piper, (K) Coopeatun I, (L) Jamie A. Baxter and (M) M.S. Lisita.



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David Cunningham

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Four clear why Racal-Decca's



Marathon Licensee To Build Third Jackup Rig

Marathon LeTourneau Offshore Company licensee, Euroasia Shipyard Company Limited, Hong Kong, has signed a contract with Construction & Marine Services Company (S.A.K.), Kuwait, for construction of a Class 116-C self-elevating mobile offshore jackup drilling unit. Contract delivery date for the canti-

lever jackup is the second quarter of 1983.

This contract, Euroasia's third since March 1981, fills the first of the yard's 1983 construction slots. Euroasia has two rig slots still available for that year.

A unique feature of the large rig is an enclosed, air-conditioned drill floor which is expected to greatly increase crew efficiency and productivity in areas with extremely high ambient tempera-

tures. The rig will also have a four-level crew quarters capable of housing more than 90 personnel, outfitted to the specifications of Construction & Marine Services.

Construction & Marine Services Company (S.A.K.) is the leading marine construction company in Kuwait. It operates oil drilling rigs through its subsidiary, Kuwait Drilling Company. In addition, Construction & Marine Serv-

ices is the leading Kuwait company in the field of dredging reclamation. Euroasia Shipyard Company Limited is a subsidiary of the C.Y. Tung Group, the world's largest independent shipowner.

Reports Available On Coldwelding Repair Process By Velodur

American Velodur Metal, Inc., Scituate, Mass., has published two reports on the applications of its coldwelding repair process. The reports, taken from U.S. Navy and marine industry applications, illustrate how repairs can be made where conventional torch welding is not practical such as repairs to fuel oil tanks and systems, and to saltwater and potable water lines. The process eliminates the need for draining or shutting down systems.

For free copies of the two reports,

Write 50 on Reader Service Card

UPSCO Appoints George Geyer VP-Resource Mgmt/Admin



George W. Geyer

George W. Geyer has been appointed vice president of Resource Management and Administration of the Upper Peninsula Shipbuilding Company (UPSCO). UPSCO's facility in Ontonagon, Mich., specializes in the construction of tugs, barges, drydocks, and ships or other steel fabrication work.

Mr. Geyer came to UPSCO in 1980 from Babcock and Wilcox, where he began working as a senior business analyst, sales engineer, and senior project manager and subsequently became the manager of pricing applications in their Commercial Applications Department. His substantial managerial experience enables him to currently establish and control UPSCO's policies and procedures for personnel, purchasing, materials management, public relations, and contract administration.

Mr. Geyer attended the United States Merchant Marine Academy, where he received a B.S. degree in marine engineering and later sailed as an engineer on retrofit and automated vessels. After his service in the merchant marine, he obtained master's degrees in both business administration and industrial engineering from the University of Washington.

4 reasons ARPA is truly ahead

If you ask any experienced mariner what he needs from an ARPA, he'll tell you it should have first-rate all-weather performance, be easy to operate, and provide information of the very highest integrity and dependability where it's needed — on the main radar display.



That's why the Racal-Decca ARPA design has been carefully conceived to satisfy these needs.

The result is an ARPA of outstanding performance and dependability. An ARPA which doesn't merely meet IMCO requirements under favourable, steady-state conditions, but which provides a first-class, practical, automatic aid to safe navigation under the most adverse conditions of weather and traffic density — and in rapidly changing situations.

There are four clear reasons for this superiority:

Automatic all-weather clutter control

The data extraction system has its own independent form of Racal-Decca Clearscan video processing — already fully-proven in thousands of vessels — which automatically and adaptively ensures a clutter and interference-free input for the tracking system.

Gain optimized for each target

Separately optimized gain for each tracked target — regardless of operator control settings for best picture viewing — maximizes tracking accuracy and integrity for all targets, large or small, at all ranges.

Accurate continuous tracking

Storage of position and velocity of tracked targets in true-motion format gives accurate, continuous data during and after own ship's manoeuvres — unlike less advanced systems which 'free-wheel' their tracks until they can establish new relative velocities for each target.

Racal-Decca

Racal-Decca Marine Inc.
4200 23rd Avenue West, Seattle, Washington 98199. Tel: (206) 285-3992.



Track change warning

A unique feature of the Racal-Decca target tracker is its ability to satisfy two conflicting requirements: to provide smooth, stable vectors in an unchanging situation, yet to detect quickly and provide rapid warning of changes in target speed and course.

The Racal-Decca ARPA is a complete, simple-to-operate, radar display designed for use as a master or slave unit with Racal-Decca Clearscan radars. It meets, or exceeds, IMCO and US Coastguard requirements. And it flies the Racal-Decca flag, which means proven quality and



reliability, and the finest after-sales support by the largest marine electronics service organization in the world.

Dome Petroleum Signs Agreement To Export LNG For Japanese Utilities

Dome Petroleum Limited, Calgary, Canada, and NIC Resources Inc., a wholly owned subsidiary of Nissho-Iwai Corp., Japan, announced the signing of an agreement for the sale of 2.6 million tons per year (400 million cubic feet per day) of liquefied natural gas (LNG) from Canada to four

Japanese utility companies. Serving some 45 million customers, the companies are: Chubu Electric Power, Osaka Gas, Kyushu Electric Power, and Toho Gas. The agreement provides for favorable Japanese financing for the LNG plant facility.

This recent agreement marks the first sale of LNG between Canada and Japan, and provides a major new market for surplus Canadian natural gas. The buyers have indicated that LNG from

Canada will significantly assist Japanese efforts to diversify their LNG sources.

It is anticipated natural gas from western Canadian fields will be liquefied in a plant to be located on the west coast of Canada for marine shipment to Japanese receiving terminals. It is anticipated that the first deliveries will begin in late 1985.

The next steps in the project are to obtain approvals for facility construction, natural gas re-

moval, and export from the relevant provincial and federal governments. Similar approvals from Japan to import Canadian LNG already have been arranged by the Japanese utility companies.

Desco Offers Capabilities Brochure

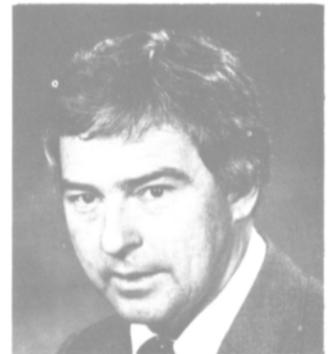
Desco Marine, St. Augustine, Fla., a division of Whittaker Corporation, recently published a new facility brochure. The brochure includes photographs and detailed descriptions of Desco's facility, equipment and engineering capabilities.

Desco Marine, a manufacturer of large fiberglass and wood trawlers, has a 27-acre manufacturing facility with 195,000 square feet under cover. The brochure depicts the entire plant as well as specific job sites. Equipment and tooling are available for large fiberglass production, woodworking, metalworking and internal metal work.

For a free copy of Desco's informative illustrated capabilities brochure,

Write 24 on Reader Service Card

Appoint Donald Challinor Senior Vice President At Burrard Yarrows



Donald W. Challinor

Donald W. Challinor was recently appointed senior vice president of Canadian ship repairer and shipbuilder Burrard Yarrows Corporation of Vancouver, succeeding Ted Jones who has retired.

Mr. Challinor joined Burrard Yarrows in 1966 and became general manager of the company's Victoria division in 1973.

William Greulich Named Assistant For Operations At SNAME Headquarters

William F. Greulich has joined the staff of The Society of Naval Architects and Marine Engineers, New York, N.Y., as assistant for operations. He will be acting as special assistant to Robert G. Mende, secretary and executive director of the Society.

Mr. Greulich was most recently the director of finance and administration and director of member services of the New York State Hotel and Motel Association.

CRANES FOR THE 80s

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1973 U.S. Coast Guard	(Single Ice Class)
1974 States Line/Lykes	(Twin)
1975 Moore McCormack	(Twin/Single)
1979 American Atlantic	(Team)
1981 C & H Sugar	(Grab)

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The Haggglunds range of cranes and cargohandling equipment can satisfy the most varied requirements. High quality and rugged construction are characteristic of both cranes and special attachments.

Haggglunds deck cranes are available with capacities from 5 t to 240 t SWL, in single, twin or Team Crane versions as slewing cranes, and as gantry cranes. Cranes for the 80s? - specify Haggglunds!



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Telex: 710-567-1227



**Josef Walter Appointed
General Manager
Of Schottel-Hamburg**



Josef Walter

Josef Walter was recently named general manager of Schottel-Hamburg, a subsidiary company of Schottel-Werft Josef Becker GmbH & Co., KG, Spay/Rhine, Germany.

He was previously the technical and commercial manager of the Comos Shipping Company, Vienna, Austria, where he introduced on the Danube River the first Schottel-Navigator units for the Comos fleet.

Mr. Walter succeeds Heinz Dolberg, who retired following 20 years of service. He will be an advisor to the company.

**Technical Paper And
Brochure Available From
MarineSafety International**

A new technical paper on maritime simulation training and information on current training programs is now available from MarineSafety International of New York City. The paper, which was presented at the recent Second International Conference on Marine Simulation held at Kings Point, makes some important points in putting practical training objectives in perspective with new simulator training hardware.

Also available is a 12-page, full-color illustrated brochure describing all of MarineSafety's training activities. This brochure also contains a description of the new ARPA (Automatic Radar Plotting Aid) training.

For additional information and free copies of the MarineSafety literature,

Write 57 on Reader Service Card

**Award \$1.6 Million To
Sperry For Satellite
Positioning System Work**

The Sperry Division of Sperry Corporation recently received a \$1.6-million contract from the U.S. Naval Air Development Center to integrate the new NAVSTAR Global Positioning System (GPS) capability into the current navigation system aboard a U.S. Navy aircraft carrier.

Although the initial integration and testing of the GPS capability for surface ships will be done aboard a carrier, the U.S.

Navy plans to use this program to determine GPS capability for all its military surface ships. Integration programs also are being conducted by the Navy to apply the GPS system to naval aircraft, helicopters, and submarines under separate contracts.

Under the contract, Sperry will develop the hardware and software changes to integrate the GPS satellite receiver with the Ships Navigation and Aircraft

Inertial Alignment System (SNAIAS) now aboard 13 Navy carriers. The SNAIAS currently provides ship's navigation information, as well as providing the initial alignment of naval aircraft navigation systems prior to launching from the carrier.

Sperry will build a laboratory model SNAIAS and then modify the SNAIAS aboard the Kitty Hawk aircraft carrier for at-sea tests of the system, which are

scheduled to begin about October 1983.

The NAVSTAR Global Positioning System is a satellite-based ultra-high frequency positioning and navigation system, scheduled to be fully operational in 1986. Consisting of 18 satellites in orbits 10,900 miles high, the system will be able to provide highly accurate three-dimensional position, velocity, and time data anywhere in the world.

A 10,000-psi jet of water promises to revolutionize routine on-board maintenance... especially rust and scale removal of surfaces to be painted.

Butterworth Systems now offers a modern alternative to the age-old chipping hammer. It's their MARINE LIQUA-BLASTER®



Diesel powered pump of a MARINE LIQUA-BLASTER onboard a vessel.

ultra-high pressure water-blasting equipment.

Especially developed for shipboard use at sea, the MARINE LIQUA-BLASTER unit uses a diesel or electric powered pump to generate a 10,000-psi jet of water that is directed by a fail-safe, hand-held gun at the surface being descaled.

"White-metal" cleaning.

On a badly rusted surface, "water only" blasting removes scale and debris, leaving a surface that is acceptable for standard maintenance painting. If a moderate amount of sand is automatically added to the water jet, a surface can be "white-metal" cleaned more effectively and more efficiently than it would be with dry-sand blasting in a shipyard. With the MARINE LIQUA-BLASTER unit, a rust inhibitor can be added to protect the "white-metal" surface against oxidation before painting.

**Introducing the
Butterworth
Systems
MARINE
LIQUA-
BLASTER®
SHIP MAINTENANCE SYSTEM.**



poop deck. The job was done as routine maintenance with interruptions for bad weather and all-hands tasks. In a little over two weeks the poop deck was "white-metal" cleaned and freshly painted.

Doing the same job in a shipyard would have cost \$13,750 at \$25 per square meter not including the incremental lay up time to accomplish this task.



Heavily rusted deck (below), after water blasting (left), and "white-metal clean after water-sand blasting (right)."

Get all the facts.

For full details and a copy of an eight-page report, "Shipboard Cleaning and Descaling with Ultra-high Pressure Water Blasting", write or call today.



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Telex: 136434

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Croydon CR9 4NX, England
Phone: 01-684-4049
Telex: 946524

PARTEK CORPORATION OF HOUSTON
3721 Lapas Drive
Houston, Texas 77023 USA
Telephone: (713) 644-3636
Telex: 762199

Better than dry-sand blasting.

Because of the high velocity of the water/sand jet, the sand impacts a rusted surface with a much greater force than with regular dry-sand blasting. The end result is faster cleaning using less sand.

Sand can cause sparking, so it should only be used in non-explosive environments.

Other shipboard cleaning.

In addition to descaling rusted surfaces, a MARINE LIQUA-BLASTER unit can be used for a number of

other on-board cleaning jobs. These include cleaning condenser and boiler tubes, oil spray from machinery, galley grease filters, clogged ports, and the like. For these jobs, as well as rusted surfaces, a variety of guns, lances, round and fan jet nozzles are available.

Proven on-board use.

The experience on a 69,742-DWT tanker, is typical of other vessels that have used MARINE LIQUA-BLASTER equipment. Here, it was first used to clean a badly rusted 550-square-meter

Mid-Coast To Build N&SA-Designed Voith Tractor Tug

Jack Wilskey, president of Mid-Coast Marine in Coos Bay, Ore., recently signed a contract to build a new Voith tractor tug for Willamette Tug & Barge, a division of Riedel International, Inc., Portland. The tug was designed by Nickum & Spaulding Associates, Inc. (N&SA), Seattle, Wash. This trend-setting vessel will have a Voith-Schneider cycloidal propeller system shipped to the United States for use in this U.S.-built and operated commercial tug. The new tractor tug will replace the steam-driven sternwheeler S/S Portland, designed by one of N&SA's parent companies—W.C. Nickum & Sons Co., Inc.

Mid-Coast Marine, Inc., the

builder of the new tractor tug, has been constructing workboats since 1956. They are known for a broad range of tugboats built for the logging and dredging industry, as well as for a new line of fishing trawlers which were introduced in 1970.

Nickum & Spaulding has a long history of designing unique workboats. The firm recently designed a Voith tractor tug, which is currently undergoing sea trials in Singapore. This tug, and her sisters that are yet to follow, will see ship handling service in the Arabian Gulf. Design of the boat for Willamette Tug & Barge, however, has started a West Coast trend as evidenced by other

recent building contracts for Voith tractor tugs.

This propeller system will enable the tractor tug to move more quickly and precisely while easing ships into and out of their Portland berths.

Principal Dimensions	
Length Overall	95'0"
Beam	32'0"
Draft	14'9"
Horsepower	2,600
Complement	6
Fuel	25,800 gallons

SNAME Los Angeles Holds First Meeting, Discusses Low Power Marine Steam Cycle



Shown during the first 1981-82 meeting of SNAME, Los Angeles Metropolitan Section, are, left to right: **George Stiehl**, chairman of the section; **George Henning**, vice chairman; **Paul Cromer**, author and presenter; **Dr. Maxwell Cheung**, secretary-treasurer; and **Gary Cash**, public relations chairman.

The first meeting of the 1981-1982 season of the Los Angeles Metropolitan Section of the Society of Naval Architects and Marine Engineers was held recently aboard the Princess Louise in the Port of Los Angeles.

George Stiehl, incoming chairman of the Section, opened the meeting and introduced the new officers: **George Henning**, vice chairman; and **Dr. Maxwell Cheung**, secretary-treasurer. **Mr. Henning** then introduced **Paul Cromer** of Todd Shipyard, San Pedro, author of the evening's

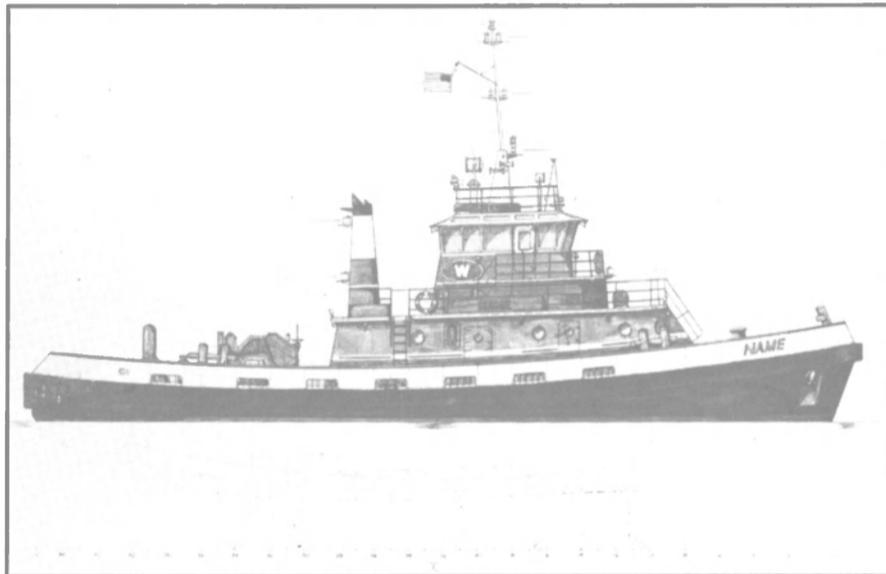
paper titled "A Marine Steam Cycle for Low Powers."

The author described a steam cycle for propulsion plants of 5,000 hp or less, and stated that the purpose of the cycle was to provide a means for smaller vessels to use coal as a fuel. He utilized preliminary heat balance data for two sets of steam conditions for a plant of 2,500 hp as a basis for the discussion. **Mr. Cromer** said that recent orders for large coal burning marine steam turbine-powered ships is the result of present and projected prices of petroleum products and questioned the lack of similar new technology for smaller vessels that are usually powered by diesel or gas turbine systems.

He cited two developments that may make a simple, low-powered, coal burning turbine plant possible; the refinement of the controllable-reversible pitch (CRP) propeller; and the use of the main reduction gear for driving major plant auxiliaries.

The CRP propeller, when used with a geared steam turbine, eliminates the astern turbine and reduces the speed range over which the propulsion turbine is required to operate. The use of the main reduction gear for driving major auxiliaries, such as the shaft-driven generator, is common for ships with DRP propellers since most ocean transit time is spent at one turbine speed and power setting.

The author detailed the beginning steps in the design of a marine steam plant: the development of the steam cycle suitable to the application; and the prediction of the cycle's performance for a number of steam conditions.



Outboard Profile

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Maintenance-free aluminum gangways and accommodation ladders designed and fabricated by W & A Engineers come in standard and custom designs.

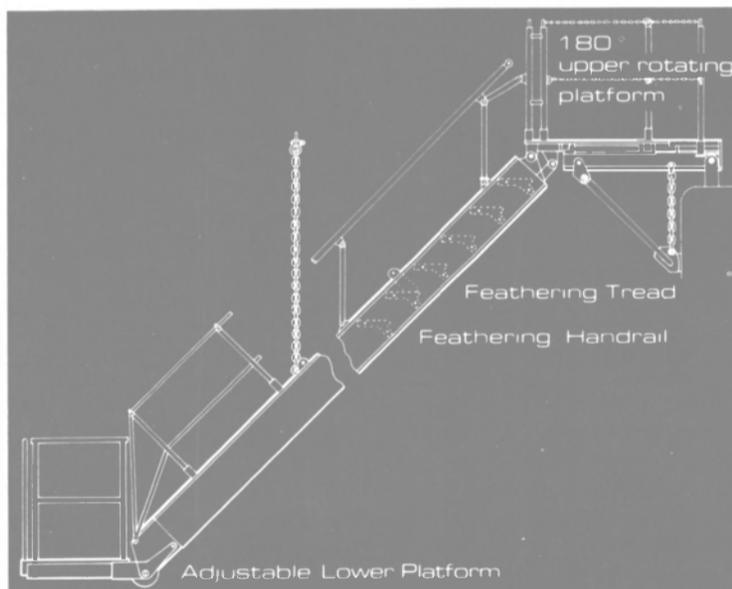
Accommodation ladders are available with upper rotating platforms, fixed tread or feathering tread and handrails adjustable lower platforms and varying widths.

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Marine Doors with adjustable Wrap-around Frames from Masonite Commercial Division. A timely reflection of current marine design trends. Available in Marlite® Brand melamine and virtually every high pressure laminate finish on the market today, each unit is a total system. A system that has been performance proven in the marine industry. A system that can be economically installed by one man in less than thirty minutes. Doors are prehung in adjustable frames and everything is factory machined and installed.

Hinges, louvers, closers. The Wrap-around Frame is engineered especially for marine applications with each corner welded to resist stress. A continuous nylon filament gasket reduces fume and sound transmission. Finally, you get on-time delivery from our two strategically located plants. Get all the details on this and other marine interior products from our Marine Business Department. Write. Or Call toll free 800-321-4404, except Ohio. In Ohio (216) 343-6621.

 **COMMERCIAL DIVISION**
MASONITE CORPORATION Marine Business Department
202 Harger St., Dover, Ohio 44622

Hitachi Zosen To Build Second Jackup For India

Hitachi Zosen, Tokyo, Japan, recently announced the company had received an order from the Oil and Natural Gas Commission (ONGC) of India to build a cantilever-type jackup offshore drilling rig.

The 66- by 61- by 7-meter rig (about 217 by 200 by 23 feet) is

the second of its kind to be built by Hitachi for ONGC. The first rig, the Sagar Vikas, was completed in December 1980 at the Osaka Works (Sakai) and was placed in operation in the Bombay High. The new order is scheduled for completion by the end of 1983 and is intended for service in the same drilling area.

The new rig, to be built at the

Osaka yard, will be capable of operating at water depths of up to 91.4 meters (300 feet) and can drill to a maximum depth of 6,096 meters (20,000 feet). It is designed to withstand waves up to 18.6 meters high and a wind speed of 54 meters per second. The jackup will be built to American Bureau of Shipping classification.

Tenfjord Of America To Service Steering Gear —Literature Available

Tenfjord of America, Inc. was recently formed in the United States to provide assistance and service in the U.S. for vessels equipped with Tenfjord steering systems.

The Tenfjord rotary ram unitized steering gear is currently in use on vessels worldwide and incorporates many advantages and safety features. For further information on Tenfjord of America and the rotary ram unitized steering gear,

Write 53 on Reader Service Card

Name Capt. Gunn Manager Of Canadian Operations For Farboil Company

Capt. George S. Gunn has been appointed manager of Canadian operations of Farboil Company, Baltimore, Md., Joseph F. Harrington, vice president, marine division, announced recently. In this newly created post, he will be responsible for developing distribution channels and sales in Canada, and will be based in Farboil's Toronto office.

Captain Gunn previously was manager of Bolton Marine Service, London, agents for Farboil in the U.K., and also was a marine consultant specializing in corrosion protection for ships and drilling rigs.

Farboil Company is a manufacturer of marine paints, coatings, and chemicals with worldwide distribution. It is a Beatrice Chemical Co., division of Beatrice Foods Co.

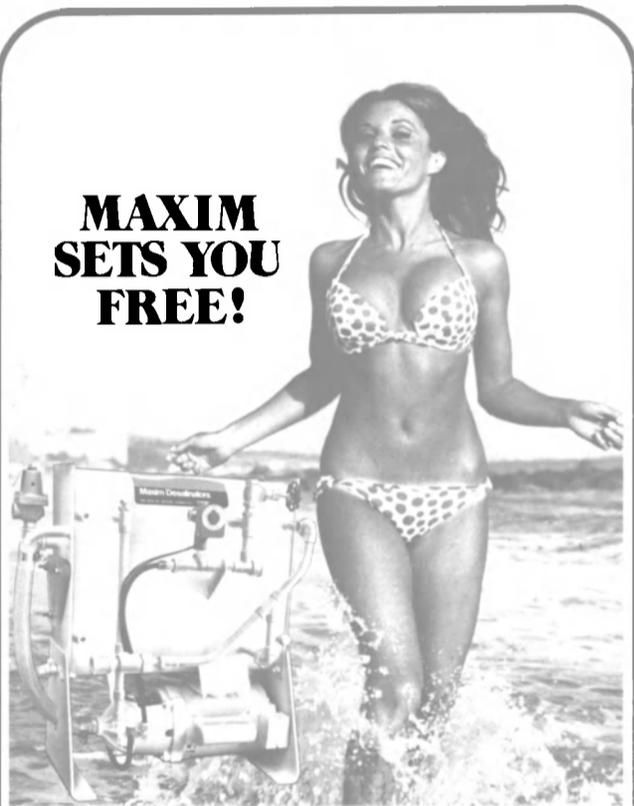
BIW Executive Elected To Chair Repair Committee Of Shipbuilders Council

Veteran shipbuilding executive Gordon H. Falt Jr. of Bath Iron Works, Bath, Maine, has been elected chairman of the ship repair committee of the Shipbuilders Council of America, Washington, D.C.

He said his committee, representing over 20 U.S. shipyards, will work with the Navy and private industries to improve techniques for overhauling and repairing naval and commercial ships.

He also is vice president of the New England Ship Repair Yard Association, dedicated to bringing more ship repair projects to the New England area.

In his newly elected post with the Shipbuilders Council, a national professional association, Mr. Falt succeeds J.G. Price, vice president of Norfolk Ship. Mr. Falt is director of marketing for overhaul and repair at Bath Iron Works, a Congoleum company.



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Maxim desalinators are available in a range of capacities from 150 to 100,000 gallons per day. Plus custom design and on-time shipment of deaerators and marine heat exchangers.

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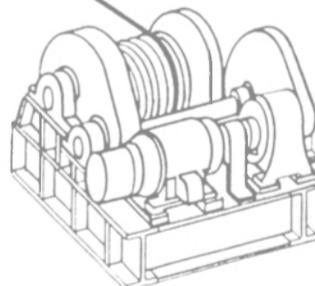
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**Name Michael Donelan
Sales Manager For
Inland Water Propulsion**



Michael B. Donelan

Robert N. Stout, executive vice president, Midland Enterprises Inc., announced that Michael B. Donelan recently joined Midland's new subsidiary, Inland Water Propulsion Systems Inc., as sales manager. Mr. Donelan will be responsible for sales of the B&W Alpha Diesel propulsion systems. Midland recently announced agreement with the Danish firm to act as sales and service agents on the U.S. inland waterways for their complete line of marine diesel power plants.

Prior to joining Midland, Mr. Donelan was sales manager for Powerway Inc., a subsidiary of Riverway Company.

The Inland Water Propulsion Systems Inc. division of Midland Enterprises Inc. allows B&W Alpha Diesel to gain representation for its diesel systems over the entire U.S. inland waterways network.

**Publish Brochure On
Fiberglass Barge Covers**

A new 12-page, four-color brochure describing cost-effective fiberglass covering systems for the marine industry has been published by Proform, Inc., Minneapolis, Minn. The products portrayed include lift-off inland barge covers, center loading, and rolling barge covers. All are light weight (1/3 the weight of steel), corrosion resistant and easily maintained. The durable fiberglass coverings increase cargo capacity and reduce contamination.

For a free copy of the Proform literature,

Write 49 on Reader Service Card

**Dedicate New Container
Terminal In Boston**

The Port of Boston's newest maritime facility—an \$18-million container terminal — was dedicated recently. Massport's executive director David W. Davis, and port director Martin C. Pilsch Jr. officiated at the ceremony.

The two-crane container facility expands the service at Massport's Paul W. Conley Marine Terminal, known formerly as the Castle Island Terminal, in South Boston. The 105-acre Conley Terminal is a major terminal for the

discharge of general cargo—specifically lumber, automobiles and steel.

The new facility at berth 11 within the Conley Terminal includes two 40-long-ton, low-profile Paceco cranes; a 1,000-foot marginal wharf; and an initial 10 acres — potential development of 30 acres — of support area for wheeled storage. It will handle 20,000 boxes annually and increase the Port's handling capacity by 50 percent.

Executive director Davis noted that this was the first major maritime facility to be built in Boston in nearly a decade. "The development of new service facilities is critical to the Port's continuing economic growth," said Mr. Davis. "Massport believes in the future of the working seaport, and therefore is making a substantial investment in both new and existing facilities."

The container facility is the first development in Massport's

\$114-million seaport expansion program to be ready for service. The program includes the \$16-million renovation of the Boston Fish Pier, the construction of the \$80-million multipurpose Massport Marine Terminal, and the reuse of non-operational port properties such as Hoosac Pier and the East Boston Piers.

The Conley Terminal container facility will be operated by a private terminal operator.

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ONE SCREEN IS ALL YOU NEED.**

ATLAS 8500 A/CAS RADAR WITH ARPA

It's the most advanced microprocessor-controlled radar system available. Featuring a brilliant 16" daylight display screen that's easily seen even without a viewing hood; from a sitting or standing position, without tilting.

Presenting a realistic picture at 8 brightness levels, the 8500 displays all important data on one screen. There's no need to transfer information from one screen to another. No loss of ARPA information when

changing ranges, either.

And that's not all! This system is so sophisticated that data processing relieves the operator of routine target tracking, displays the target route and gives a direct indication of courses, speeds, CPA, TCA, bearings and target ranges so they can all be read off simultaneously.

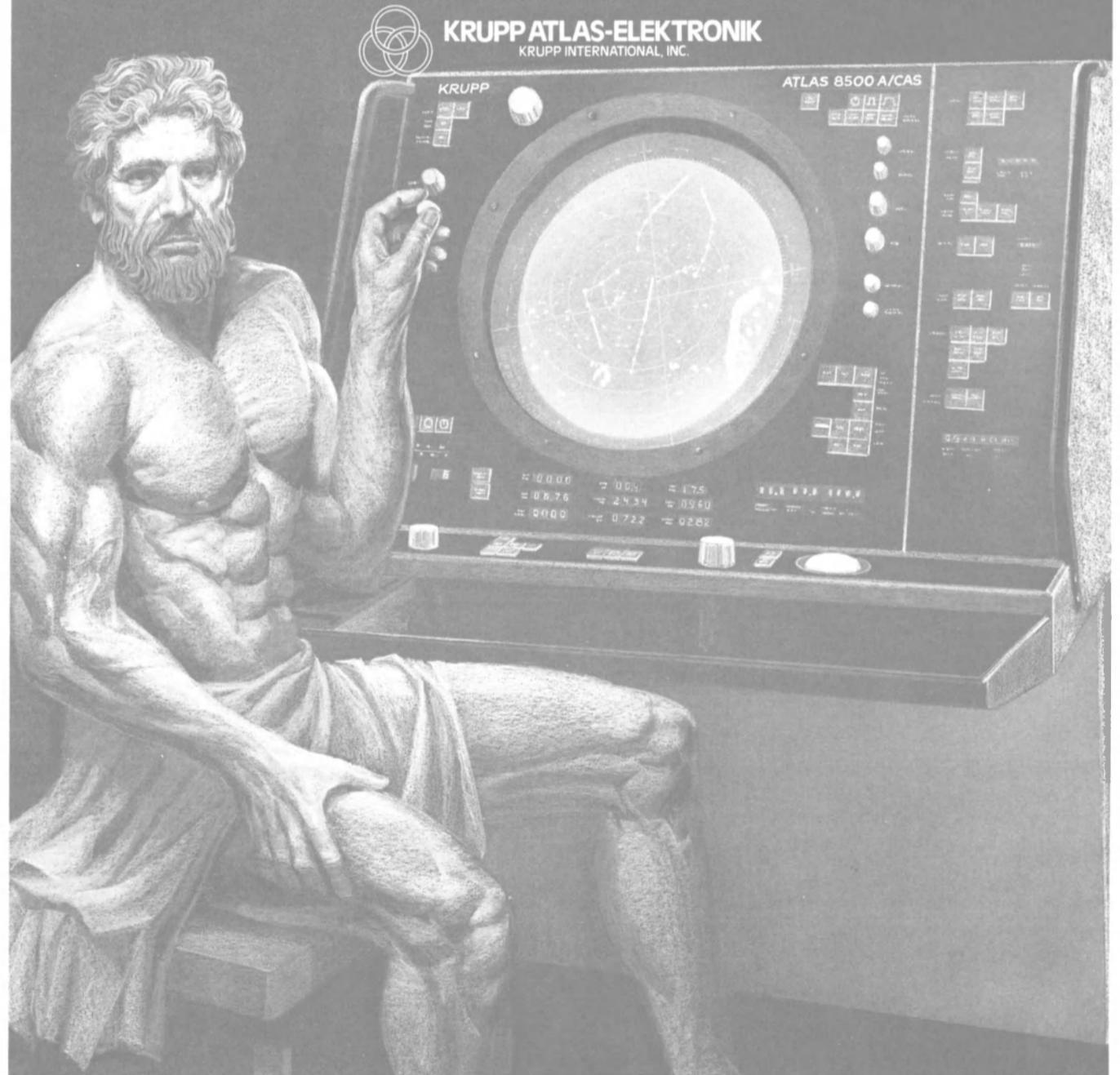
Capable of tracking up to 42 targets and displaying 20 automatically, the 8500 A/CAS also features log or Doppler log speed input capability and

the fully automated Atlas Collision Avoidance System.

It's simple to operate, simple to self diagnose possible faults. Even simpler to service, thanks to our own 16 major service depots, over 450 service agents in key locations throughout the world, and the reliability built in to every rugged Atlas 8500.

To find out more about the 8500 A/CAS with ARPA, and our two other models: the 8500 AC/RM and the 8500 AC/TM, just write for information.

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Write 505 on Reader Service Card

**Name Two Vice Presidents,
Announce Appointments
At Gulf Fleet Marine**

Gulf Fleet Marine Corporation, New Orleans, La., has named **Gary D. Pope**, senior vice president-international operations. Mr. Pope will assume management responsibility for all aspects of Gulf Fleet's international activity, which includes major operations in Brazil, Mexico, Europe, Africa, Egypt, and the Middle East.

Prior to joining Gulf Fleet in 1974, he served as tax manager of Pott Industries, Inc., in St. Louis, Gulf Fleet's parent company. He will work out of Gulf Fleet's corporate headquarters in New Orleans.

The company also appointed **Roger T. White**, vice president-international marketing. Mr. White, who joined the company in 1975, will be responsible for Gulf Fleet's



Gary D. Pope

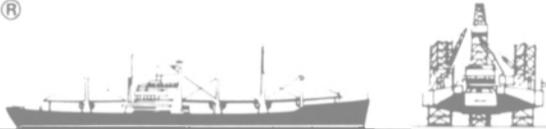
Roger T. White

international marketing activities. He has served as vice president of Gulf Fleet's Latin American operation and will be based in New Orleans.

Wally Cox has been named Gulf Fleet's domestic sales manager and will assume total domestic marketing responsibility for the company's tugs, towing supply vessels, sup-

ply vessels, utility vessels and offshore deck barges. Since 1977 he has served as sales representative in the company's Lafayette office. Mr. Cox has 11 years of sales and management experience in oil field equipment and supplies.

John Belsome has joined the company as sales representative in Lafayette, La. Mr. Belsome has six years of experience in the marine industry.

NAV-COM INTRODUCES THE MX-3102 SATELLITE NAVIGATOR MAGNAVOX QUALITY - COMPETITIVELY PRICED



With the introduction of the Magnavox MX-3102, you no longer have to settle for a second class Sat/Nav. The MX-3102 gives you Magnavox quality and reliability at a price highly competitive with many of the lesser units on the market today. You receive the full benefit of Magnavox's proven advanced technology, a result of over 30 million hours of operation on over 5,000 ships world-wide.

Aside from giving you the best value for your money, Magnavox Satellite Navigators continue to save you money every day at sea. Magnavox's proven performance and reliability record means lower operating costs and less "down" time.

If you are in the business of running ships and don't want to spend your time nursing "bargain" electronics, consider the competitively priced MX-3102 for your navigation requirements.

Nav-Com offers the full range of Magnavox Satellite Navigators for every application and budget. For your next requirement, let Nav-Com prepare a professional, engineering level proposal at no cost or obligation.

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SITTING ON TOP—The Keyes 301, the second L-780 self-elevating offshore drilling unit to be built for Keyes Offshore Companies, Houston, Texas, by Ingalls Shipbuilding, Pascagoula, Miss., is jacked to the top of its 390-foot legs during successful testing operations prior to recent delivery. The unit is now drilling for ARCO Oil and Gas Company off the Louisiana coast. Ingalls, the third largest rig builder in the country, has 14 additional units under contract, including two more for Keyes.

**Cliffs Drilling To Use
Hydranautics Equipment
Ordered By National Supply**

Hydranautics Hydraulic Systems, Goleta, Calif., announced recently the shipment of a cantilever and drill floor skidding system contracted by National Supply Company of Houston for use on a rig which has been committed for operation by Cliffs Drilling in the Texas Gulf. The equipment was specified by the rig designer, Donhaiser Marine, Inc., also of Houston.

The contract called for Hydranautics to supply a set of 50-short-ton Gripper Jack assemblies, a set of 150-short-ton Gripper Jack assemblies and a control console. According to Hydranautics, the load skidding equipment will allow a substantial cut in the amount of fabricated steel that would otherwise be required in the construction of the rig.



Fred Ramsden, Fred West

“Our strict inspections mean these barges are ready for immediate loading on delivery”

Making certain the customers get everything they wanted, and that a barge can do everything it was designed to do, requires total knowledge of barges and their construction. HBC Barge Inspectors, Fred Ramsden and Fred West:

“We’ve both worked as welders, fitters and layout men here at HBC Barge. We know from experience what goes into a well-built barge, start to finish. We inspect, start to finish.

“Welding is tested with an Ultrasonic Tester for required penetration and solid integrity. Hydrostatic testing is run on every tank barge. Every seam is soap seal tested.

“Our air test on every barge

is different than most. We test the whole barge, seam by seam, not just by compartments.

“We check on everything the blueprints and specs calls for, and everything that good construction requires, such as: fittings; pumping, piping and power systems; insulations, linings and coatings; and as perfectly straight barge construction as possible.

“The Coast Guard, and the American Bureau of Shipping, also inspects these barges. So do the customers’ inspectors, some of whom say this is some of the finest work they have seen. They

say virtually nothing gets past us.

“We try.”

Get your next barge fleet from a couple of inspectors as tough as any river. HBC Barge builds barges in any size and configuration you need, for chemicals and other liquids, coal, grain and other commodities.

Go beyond options and get what you want.

For more information on getting your next barge fleet built to your specs, contact:

HBC Barge

HBC Barge, Inc.

Formerly named Hillman Barge & Construction Company.

Brownsville, Pennsylvania 15417

Phone: (412) 785-6100

Free Encyclopedia And Technical Article On Anchoring From SeaTec

A 24-page Anchoring Encyclopedia and a technical article on pipeline anchoring are available free from SeaTec International, Ltd., Houston, Texas.

SeaTec, a worldwide marine contractor, and A.B. Chance Company, a developer and manufacturer of land anchors, recently

combined efforts to offer pipeline anchors and anchoring services in North America and the U.K. SeaTec will be the exclusive A.B. Chance representative for offshore installations in this area.

Chance has 60 years of experience in anchor design, fabrication, and installation, including a computerized data base which contains samples from virtually every region in the United States. SeaTec has developed techniques for testing anchor holding power

before, during, and after the installation, on land and offshore.

To meet customer requirements for fast supply and special applications, SeaTec has built a pipeline bracket fabrication facility in Houston.

The new association of the companies has resulted in the awarding of three contracts to supply Chance anchors and SeaTec installation equipment and techniques to contractors on the Northern Border Pipeline project

running from Minnesota to Montana.

For free copies of the encyclopedia and article,

Write 23 on Reader Service Card

Santa Fe International To Merge With Kuwait Petroleum Corp.

Santa Fe International Corporation, Alhambra, Calif., and Kuwait Petroleum Corporation announced recently that the companies have signed a definitive merger agreement under which Santa Fe will become a U.S. subsidiary of the government-owned Kuwait Petroleum Corporation.

Santa Fe's board of directors has unanimously approved the merger agreement and has scheduled a special shareholders' meeting for December 1.

Santa Fe, an international drilling contractor, engages in oil and gas exploration and, through C.F. Braun & Co., in process engineering and construction. In 1980, Santa Fe had revenues of about \$1.2 billion, half of which was derived from foreign operations.

Kuwait Petroleum is a commercial enterprise engaged through subsidiaries in the production, refining, and marketing of oil, natural gas, and petrochemicals, both in Kuwait and abroad. The Kuwait government has approved the transaction and it is now subject to the approval of Santa Fe stockholders.

Under the merger, stockholders will receive \$51 for each share of common stock—a total of \$2.5 billion for 49 million outstanding shares.

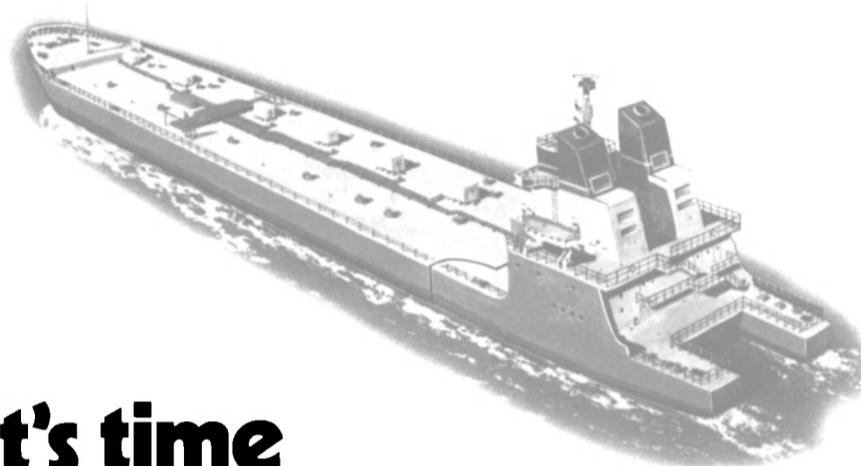
John Farrell Named VP Of ESAB North America's New Welding Division



John Farrell

John Farrell has been named to the position of vice president and general manager of the newly formed Robotic Welding Division of ESAB North America, Incorporated. The new division will handle all sales, service, and application development of ESAB's Robotic Welding Systems using the ASEA IRb6 all-electric robot and ESAB's computerized welding technology and equipment. ASEA is an ESAB associate. Mr. Farrell had been robot marketing manager of ESAB-HEATH. He will be based at the company's North American Headquarters in Fort Collins, Colo.

When diesel engine breakdown is unthinkable...



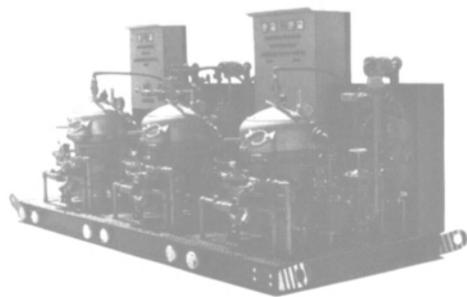
it's time for "CENTRI-PACK"

Work boats designed to burn lower-cost, more available heavy fuels are on the way. Example: the new integrated tug/barge combinations—"work vessels of the future."

A key factor in their design concept is the use of an efficient oil-purifying system. That's why leading diesel engine manufacturers, working with shipyards like Halter Marine, specify Westfalia CENTRI-PACK modules as original equipment. . . CENTRI-PACK systems remove water and impurities from heavy oil, so you don't have to think about disastrous breakdowns due to diesel engine damage.

The Westfalia CENTRI-PACK is a compact module that fits almost anywhere. Built around one or more Westfalia Centrifugal Purifiers, it incorporates all necessary components—piping, wiring, motors, pumps, heaters, control panels, the works. Operation is automatic, installation is easy.

There's more. CENTRI-PACK also cleans lube oil, removing carbon and metal particles—which prevents premature engine wear, sharply reduces downtime, and saves money by extending lube oil life. Planning your own "work boat of the future?" It will pay you to learn more about CENTRI-PACK. Call us.



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CENTRI-PACK



Nystron® proving better than Nylon for Marine Mooring Systems

Ten years ago Samson introduced a 21" cir. mooring hawser for the Ekofisk field that combined high tenacity polyester with nylon. These hawsers performed with 100% dependability until the buoy gave way to a pipeline.

Today that rope design is called NYSTRON, and many more tests and installations have shown it offers significant advantages over all-nylon ropes:

- Higher residual strengths under wet conditions
- Improved abrasion resistance
- More controlled and predictable elongation

In addition, NYSTRON composite fiber ropes have now been further improved with Samson's Duron® high tenacity poly-

ester fiber technology combined with closely controlled BlueMark™ Nylon fibers.

Samson can give you this experience and technology by engineering and fabricating complete mooring systems, including terminations, chafe protection, flotation, rope coatings and support buoys... the only single source mooring capability available in the marine industry.

Make sure you get both cost effectiveness and dependability—talk to Samson before you design any mooring system.

Send for descriptive literature and technical data. Contact Marine/Systems Div., Samson Ocean Systems, Inc., 99 High Street, Boston, MA 02110. Tel.: 617/426-6550.

The double BlueMark™ strands identify Samson's Nystron® composite double braid using Duron® fiber and high tenacity nylon for the highest strength-to-weight ratio available.



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CORPORATION

More Combustion With Less Fuel Consumption!

As the quality of marine fuel continues to deteriorate, the necessity of fuel treatment and/or pre-treatment commensurately escalates. ANY fuel oil available to the global maritime industry at this point in time can (perhaps MUST) be improved.

While there is no SINGLE panacea for marine bunkers of varied and varied or widely disparate elemental composition, it is believed here that any effective means to improve the combustion environment and thereby reduce combustion-related maintenance costs ought to be given serious consideration. The XRG marine fuel treatment was NOT formulated exclusively to combat vanadium, OR merely to cope with high sulphur content, OR for the sole purpose of dealing with high-carbon residue and/or "sludge" (although it is rather effective in all of these areas).

The XRG catalyst is not just a solvent or sludge-remover. It is, rather, a combustion-efficiency improver. XRG is, quite simply, reduced vessel operating costs via more complete combustion. In petro-chemical terms, XRG improves hydrocarbon combustion in the vapor stage. In layman's terms, we are talking about a combustion environment wherein all or nearly all of a given fuel's inherent BTU value is combusted and thus utilized.



No. 1208

1 June 1981

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Name McIngvale Regional Marketing Manager For Golden Gulf Marine



Ralph C. McIngvale

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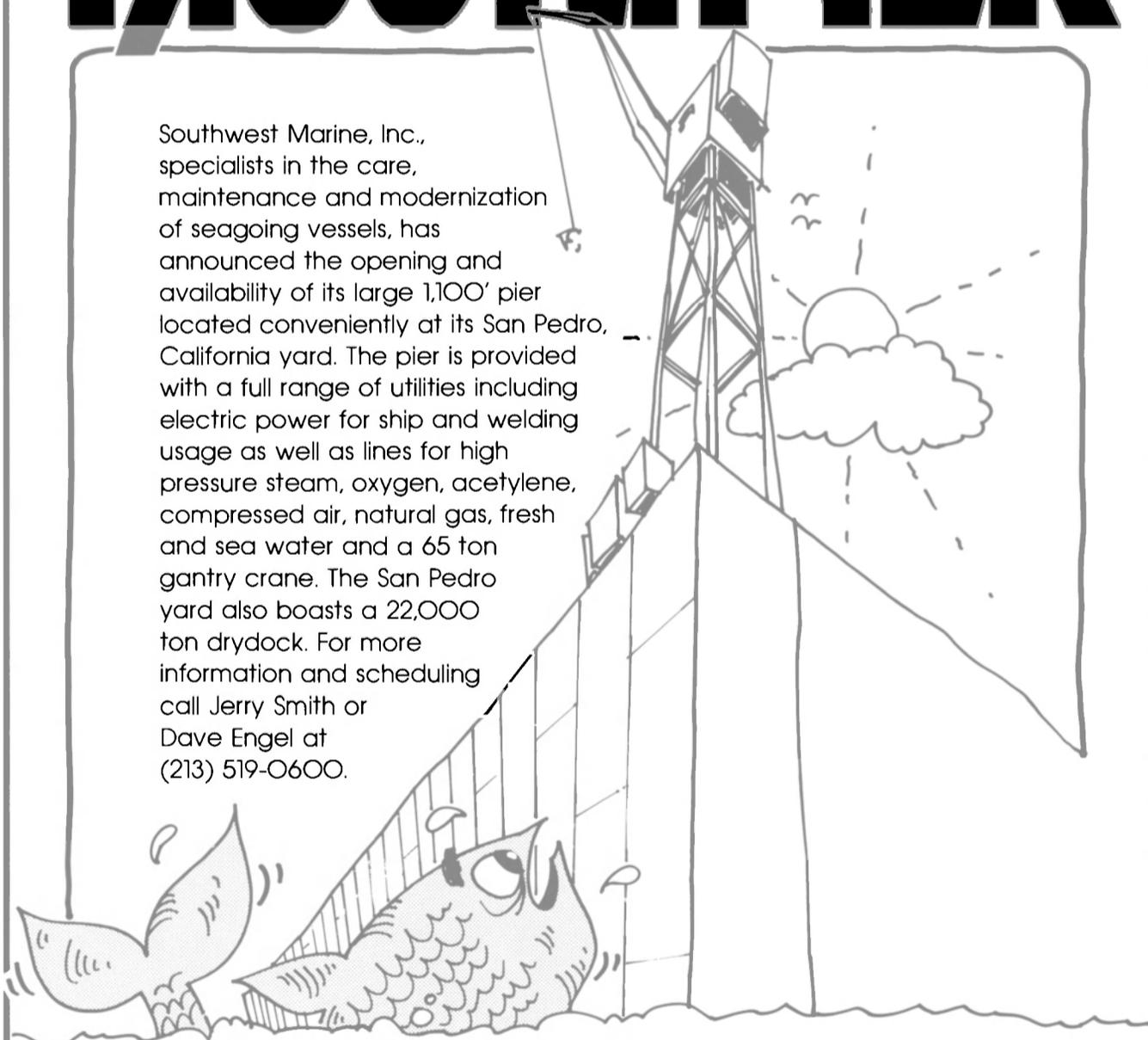
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For a free copy of the literature, Write 44 on Reader Service Card

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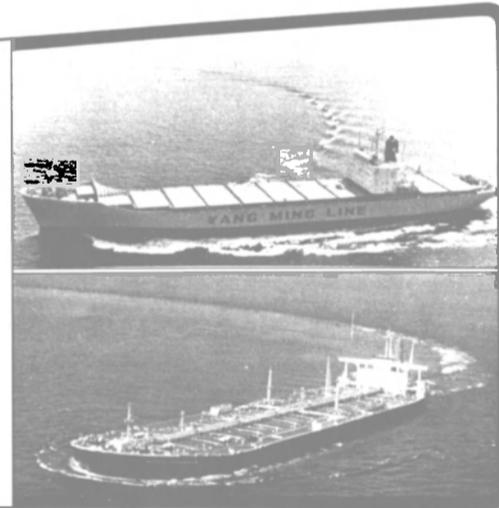
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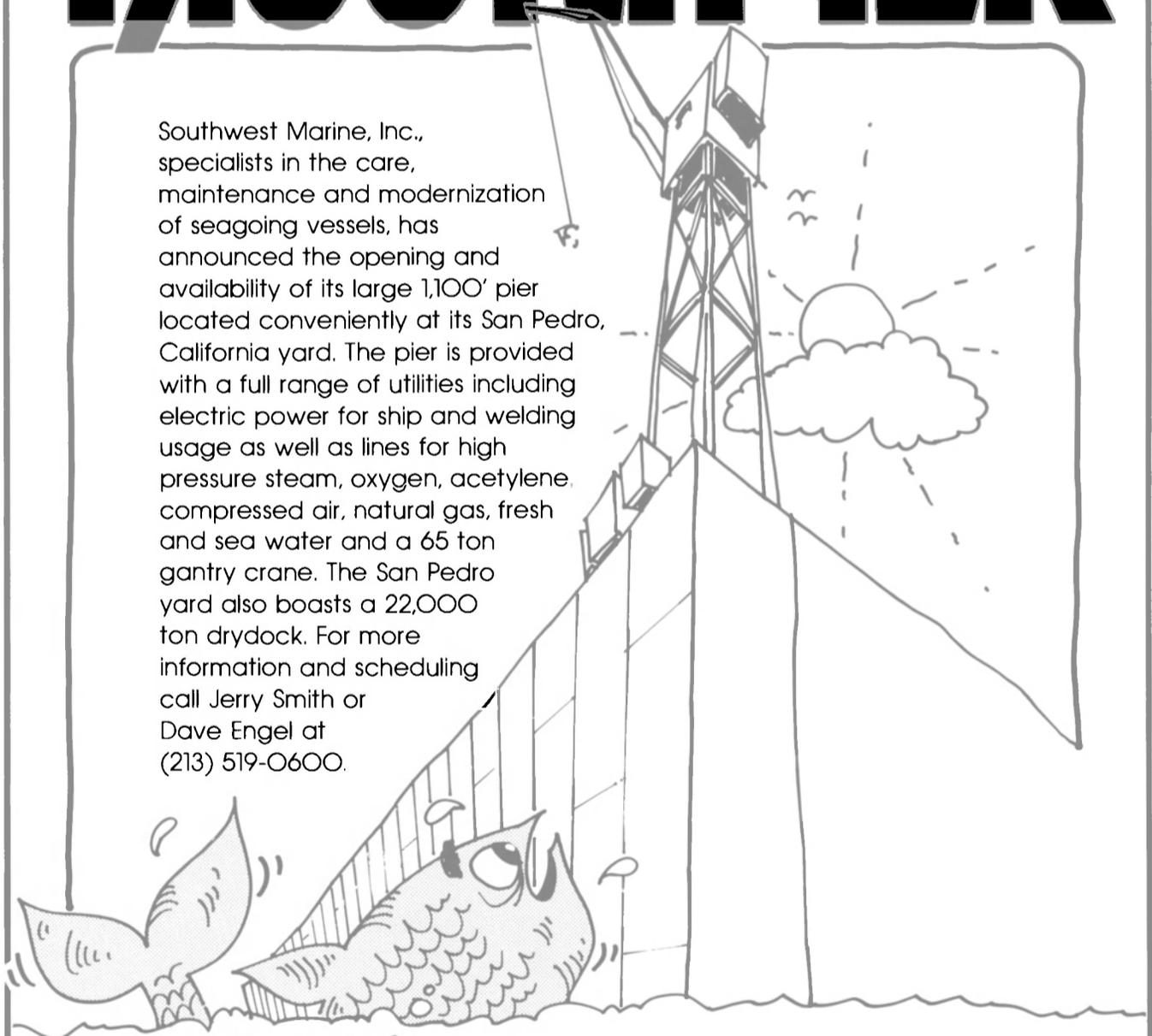
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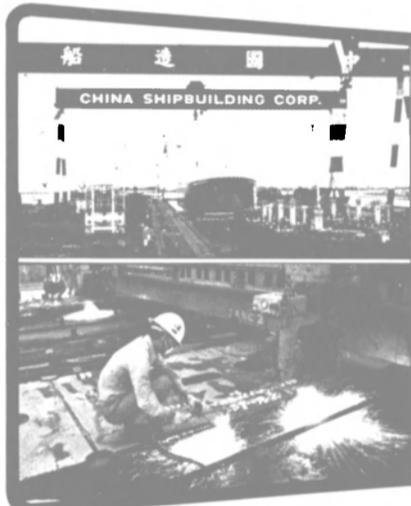
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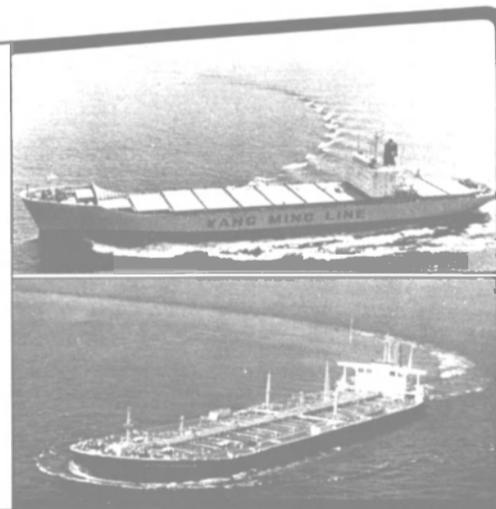
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Texaco Grant For Webb Institute



Vice Admiral Bryan, president of Webb Institute (left), accepting a \$5,000 contribution from vice president James A. Cole Jr. (right) of Texaco Inc.

Webb Institute of Naval Architecture, Glen Cove, N.Y., recently received a \$5,000 grant from Texaco Inc.

Institute officials said that the contribution will be used for the general scholarship program to further its curriculum in naval architecture and marine engineering.

Vice Admiral Bryan, president of Webb, stated that "The Texaco Inc. contribution will be used to offset the unabated rise in Webb's costs and will help assure the continuation of our tuition-free policy." The grant was made on behalf of Texaco by James A. Cole Jr., vice president.

NRC Releases Study Assessing The Safety Of OCS Offshore Oil

The National Academy of Engineering recently released its study of "Safety and Offshore Oil." This document was commissioned by the U.S. Geological Survey and the U.S. Coast Guard in response to a provision of the OCS Lands Act Amendments of 1978.

In June, 1979, the Geological Survey requested that the National Research Council (NRC) undertake an assessment of the adequacy of technologies and regulations as a major contribution to the mandated study. For its part, the NRC appointed the Committee on Assessment of Safety of Outer Continental Shelf (OCS) Activities to conduct the assessment under the aegis of the Marine Board.

The Committee conducted a comprehensive assessment of safety on the outer continental shelf, taking "safety" to include that of people, the marine environment and property, and encompassing the lessening of risk and the avoidance of accidents. In its work, the Committee did not attempt to place OCS oil and gas development in perspective with other resource development activities. With regard to assessing the adequacy of regulations, the Committee directed its attention to regulatory practice and

compliance. No attempt was made to broaden this evaluation into a management audit of government responsibilities and programs.

The Committee initiated its study with a request for information and opinions on the safety of OCS activities from interested parties. This served to identify sources of public and industrial concerns. The Committee then reviewed the historical record of the safety of OCS activities and

the conclusions and recommendations of previous studies. The Committee then assembled data on OCS technologies and regulations, organizing the data by areas of safety concerns.

The final task of the Committee was to prepare for each area of safety a technical description of technologies and regulations for analysis and assessment.

The final assessment of adequacy is a judgment and is the

consensus arrived at by the Committee through collective evaluation of the technical analysis and discussion.

This report may well be the basis for other studies and additional offshore safety regulations in the future.

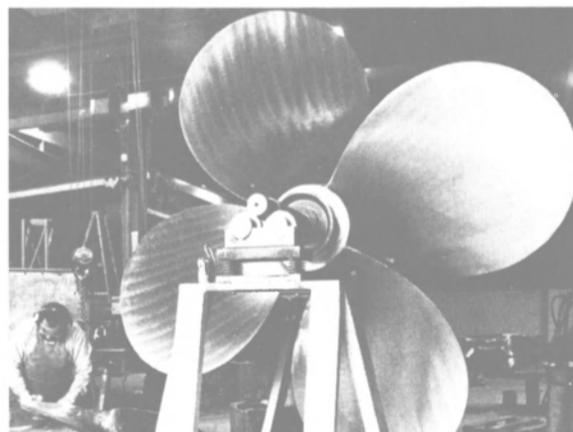
Copies of "Safety and Offshore Oil" are available for \$11 from the National Academy Press, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

Michigan Wheel... the single source for every move you make.

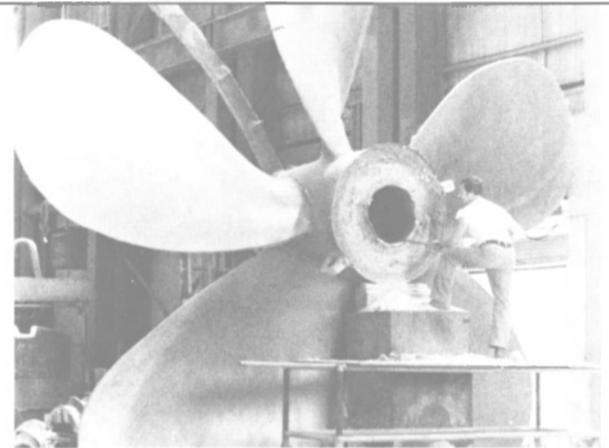
For the most part, power, efficiency, maneuverability and smoothness of operation depend upon what's on the business end of your power plant. And that's where Michigan Wheel goes to work for you. Whether your needs are small or large, rely on Michigan's free expertise and consulting service to assure correct fit to your engine, hull and use requirement. As a result, you can get the most from every drop of fuel and make even the most difficult maneuvers with ease. For example —



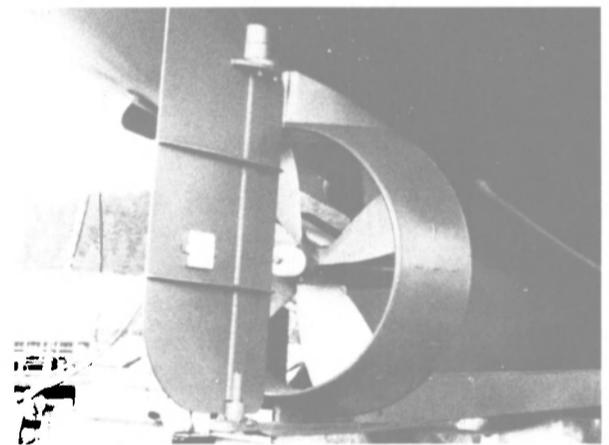
Michigan's Work-Horse™ is a tough 4-blade propeller with heavy cross-sections and heavy-duty leading edges designed to give you smoother operation than the 3-blade wheel it replaces. It is cast and available in three very strong materials: Michalloy K bronze and Ni-Bral through 30' dia., and CF 3 mod Stainless Steel in sizes through 18' dia. All offer exceptional resistance to corrosion and damage... could save costly haul-outs, repair and downtime.



Coolidge Propellers have earned a world-wide reputation for tough, yet readily repairable stainless steel propellers. That's because, with more than 60 years of experience, Coolidge has accumulated vast knowledge about casting stainless steel. Coolidge also claims a world reputation for efficient prop designs. 3-, 4- or 5-blade styles up to 13' dia., as well as CP blades, are available in bronze or stainless. Our engineers will create custom designs to suit your need.



Michigan Wheel Gulf Coast is Michigan's newest facility, providing 64,000 sq. ft. of manufacturing area on 47.5 acres of easily accessible land. Furnace capacity is 10 tons for stainless and 75 tons for manganese bronze. Bronze propellers can be cast to 30' diameter, poured to your specifications or custom engineered by our Michigan staff. Stainless steel propellers can be cast to 18' diameter. Propellers are generally produced to ABS, Lloyds or Bureau Veritas, or other classification society standards.



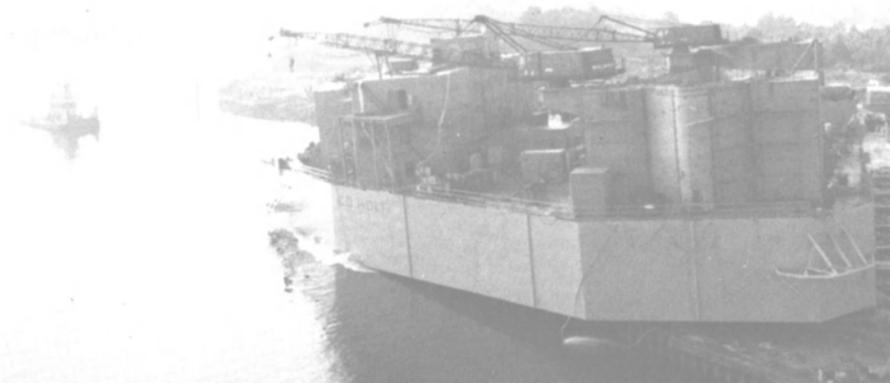
Michigan's Ducted Propeller System is the biggest energy saver of all. It can give you (1) more thrust with the same power, or (2) the same thrust with less power... and increased thrust means more towline or bollard pull. The system uses Kaplan-style propellers mated to the Michigan fixed or steering nozzle. Nozzles are available, suited to your particular application, in NSMB type 10B or 37 with all stainless steel interiors or stainless wear ring. Fuel consumption goes down and profitability goes up. Get all the facts before you reprop.

Besides propellers, Michigan™ can supply you with fairwaters in stainless or bronze, prop shafting to any specification in ABS, steel or stainless alloys, together with a full line of hardware... stuffing boxes, stern bearings, sea fittings and couplings. Before you pick your source, add up the pros and cons... then go with the pros! Send for Michigan's FREE consulting analysis form. Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507.



MICHIGAN WHEEL

Michigan Wheel Division Dana Corporation



The Ed Holt, a Class 111-C self-elevating mobile offshore drilling unit, is launched at Livingston Shipbuilding Company, Orange, Texas.

Livingston Launches The Ed Holt, First Of Two Jackups For Noble Drilling

Livingston Shipbuilding Company, Orange, Texas, recently launched the first of two jackup drilling rigs for Noble Drilling Corporation of Ardmore, Okla. Noble Drilling, one of the lead-

ing domestic drilling contracting firms, formed in 1921, is a wholly owned subsidiary of Noble Affiliates, Inc. It owns seven platform rigs, three shallow-water mobile rigs, three inland barge rigs, and 34 land rigs.

Named the Ed Holt, the overall dimensions of the triangular-shaped rig are 200 feet by 186 feet by 23 feet. The 414-foot-long four-chord square-truss legs allow the vessel to drill in water depths up to 300 feet to a maximum well depth of 25,000 feet. Approximate cost of this rig is \$37 million.

Design criteria of the cantilevered unit make it capable of operating under the harshest weather conditions. This self-elevating platform will be able to withstand winds of up to 109 knots and seas of 50 feet. Accommodations will be provided for a crew of 54.

Alfa-Laval Separators Offered In Two Series —Literature Available

An eight-page illustrated brochure describing the capabilities of two series of MAB separators for marine and mineral oils has been published by Alfa-Laval Inc., Fort Lee, N.J.

The company's 200 and 100 series are depicted with photographs and dimensional drawings of the units in which components are identified. An installation chart and specifications also are included.

The MAB 200 separator series has five models of high-speed centrifugals which are designed to remove impurities from mineral oils in a continuous process. The two-model 100 separator series is designed for smaller capabilities.

For a free copy of the brochure,

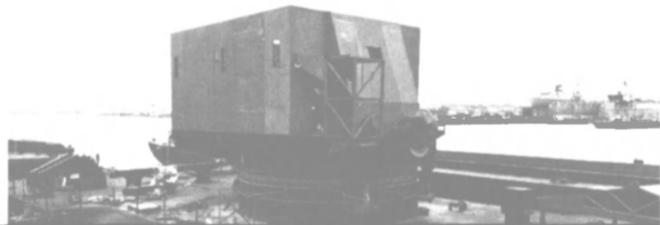
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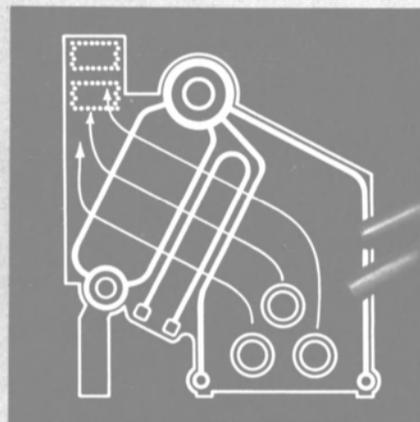
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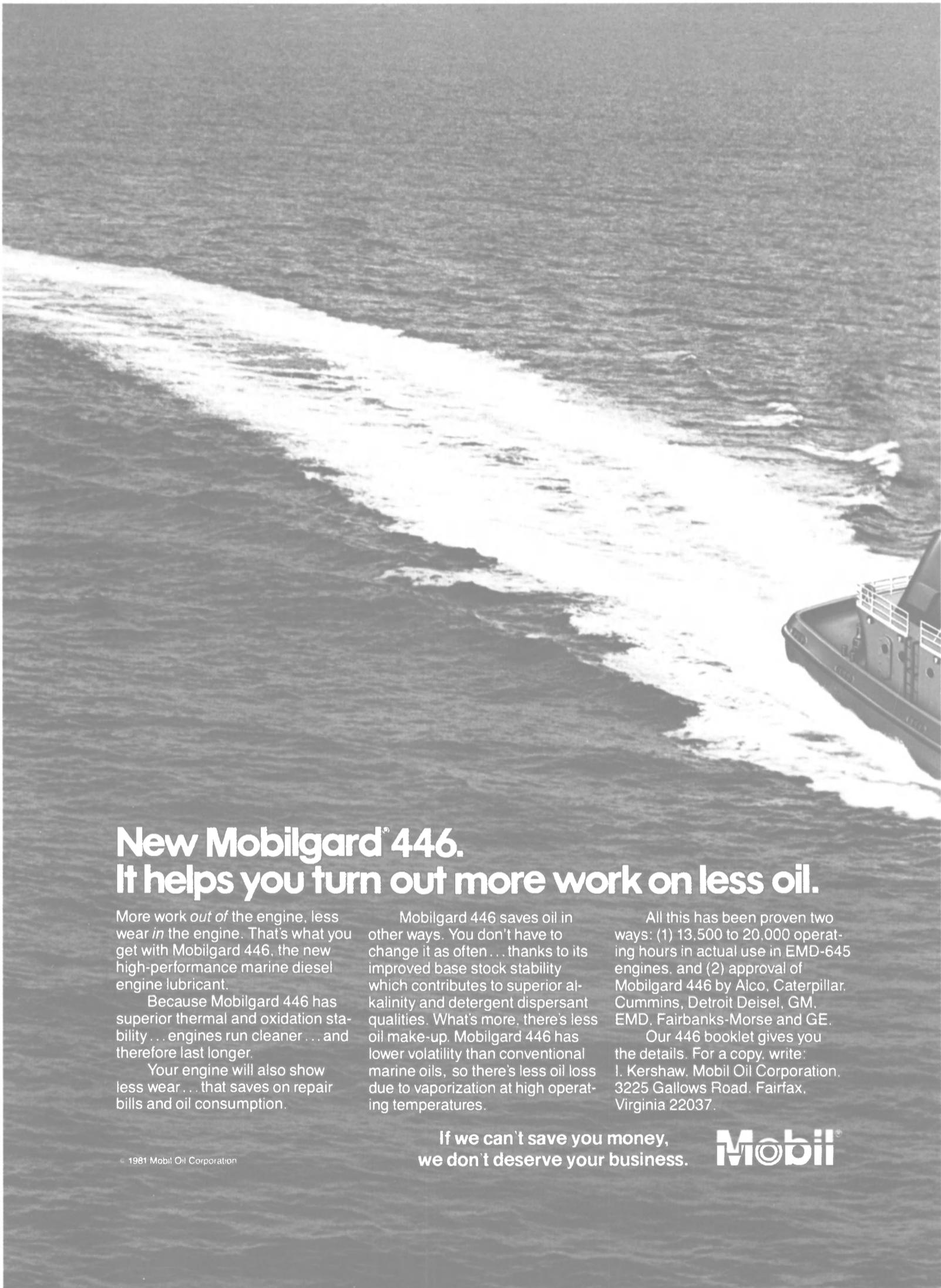
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New Mobilgard® 446. It helps you turn out more work on less oil.

More work *out of* the engine, less wear *in* the engine. That's what you get with Mobilgard 446, the new high-performance marine diesel engine lubricant.

Because Mobilgard 446 has superior thermal and oxidation stability . . . engines run cleaner . . . and therefore last longer.

Your engine will also show less wear . . . that saves on repair bills and oil consumption.

Mobilgard 446 saves oil in other ways. You don't have to change it as often . . . thanks to its improved base stock stability which contributes to superior alkalinity and detergent dispersant qualities. What's more, there's less oil make-up. Mobilgard 446 has lower volatility than conventional marine oils, so there's less oil loss due to vaporization at high operating temperatures.

All this has been proven two ways: (1) 13,500 to 20,000 operating hours in actual use in EMD-645 engines, and (2) approval of Mobilgard 446 by Alco, Caterpillar, Cummins, Detroit Deisel, GM, EMD, Fairbanks-Morse and GE.

Our 446 booklet gives you the details. For a copy, write: J. Kershaw, Mobil Oil Corporation, 3225 Gallows Road, Fairfax, Virginia 22037.

If we can't save you money,
we don't deserve your business.

Mobil

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Detroit Diesel Publishes Literature On Range Of Low Profile Engines

The Detroit Diesel Allison Division of General Motors Corporation, Detroit, Mich., has published data sheets containing easy-to-read specifications of its marine models of low profile engines.

The literature covers the 280-hp, 335-hp, 525-hp, 570-hp, and 675-hp engines. Each data sheet contains a photograph of the particular engine, model numbers available, and schematic drawings illustrating the engine's principal dimensions.

For a free copy of the data sheets of the low profile engine series,

Write 35 on Reader Service Card

Twelve Prominent Marine Industry Executives Are Elected Members Of ABS

Twelve maritime industry executives from six countries were elected members of the American Bureau of Shipping (ABS) at the semiannual meeting of the international ship classification society held recently at ABS head-

quarters in New York, N.Y. The new members are: Dr. **Elcio Costa Couto**, superintendent, SUNAM-AM — Superintendencia Nacional de Marinha Mercante — Rio de Janeiro, Brazil; **Leonard Erb**, president, Ingalls Shipbuilding, Pascagoula, Miss.; **Panagos S. Fafalios**, managing director, Fafalios Shipping S.A., Piraeus, Greece; Vice Adm. **James S. Gracey**, USCG, Commander-Atlantic area and Third Coast Guard District, New York, N.Y.; **George J. Hossfeld Jr.**, president, Jakobson Shipyard, Inc., Oyster Bay, N.Y.; **K.M. Koo**, managing director, Valles Steamship Company, Ltd., Hong Kong; **V.J. LeBlanc**, vice president and group executive, McDermott Incorporated, New Orleans, La.; **Raymond Lemay**, president, Canada Steamship Lines Inc., Montreal, Quebec, Canada; Rear Adm. **Clyde T. Lusk Jr.**, USCG, chief, Office of Merchant Marine Safety, Washington, D.C.; **Kenneth M. Mole**, assistant vice president/general manager, ABS Computers, Inc., New York, N.Y.; **Thomas J. Rechanti**, president, Fruehauf Corporation, Detroit, Mich.; and **R.W. Scheffer**, group managing director, Smit International, Rotterdam, Netherlands.

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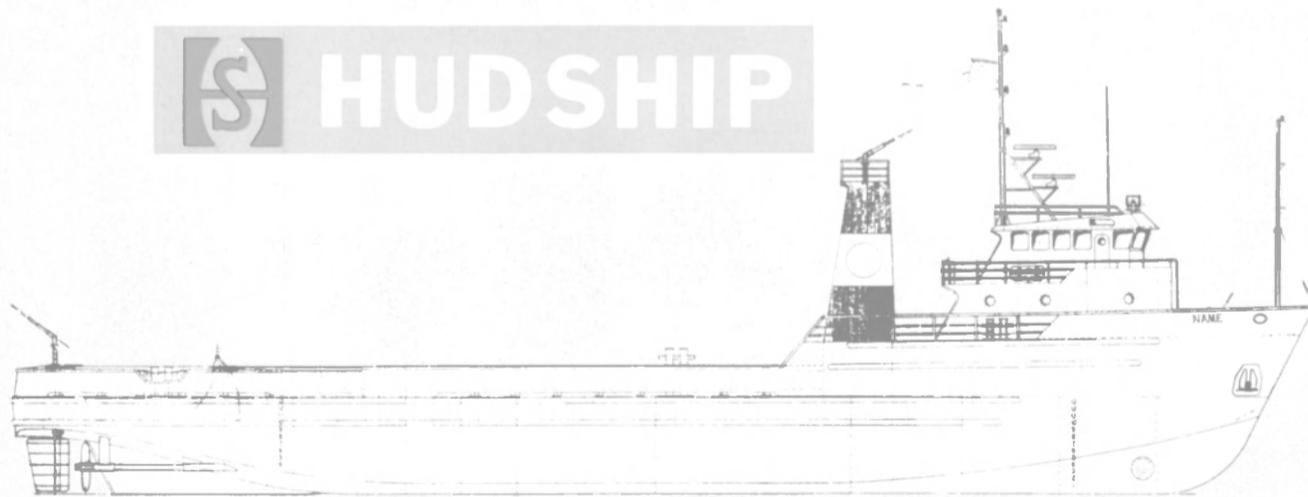
We've added the 185 foot and the 203 foot tug/supply vessels to our line of quality boats. It's what you've demanded from us and what we can deliver.

At our new seventeen acre shipyard we're building larger vessels for our old friends and some new friends too.



THE 185 FOOT CHARACTERISTICS

- Length overall185'
- Beam40'
- Depth14'
- Design water line10'



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Richard Place Named General Manager For Schottel In South America

Richard F. Place has been appointed the general manager of Schottel-Sudamericana ICOSA, Buenos Aires, Argentina, a subsidiary company of the international Schottel Group.

He succeeds **H.P. Frahne**, who retired after 18 years of service.

Mr. Place has held positions as a sales engineer for other international organizations and previously was the commercial manager at Concast Latinoamerica.

Bulletin Describes Racor's Line Of Separator Systems For All Diesel Engines

Racor Industries, Inc., Modesto, Calif., offers an eight-page brochure describing and illustrating its products for use on marine diesel engines. Included are fuel filter/water separators, in-line fuel heater, in-filter fuel heater, water sensor light/alarm kit, and vacuum gauge & vacuum/pressure gauge.

Racor fuel filter/water separator models are available for most marine applications. These models have been tested extensively to meet U.S. Coast Guard requirements, and are Marine UL Listed by Underwriters Laboratories. Multiple units with individual filter separator valving permit continuous engine operation, at reduced flow rates, during servicing.

For further information and a free copy of the brochure,

Write 27 on Reader Service Card

WELCOME TODD SHIPYARDS TO THE SYNCRIFT® FAMILY



Todd Pacific Shipyards Corp., Los Angeles division, has just become the newest member of the Syncrolift family . . . now 148 installations in 58 countries. When completed, the Todd Syncrolift will be the largest shiplift in the world . . . 655 feet long, 106 feet wide, with a lifting capacity for vessels up to 48,000 DWT. An adjacent transfer system will enable the yard to service five maximum size ships ashore at one time.

Center photo at right shows 43,600 DWT vessel on Syncrolift at Tandano S.A. yard in Buenos Aires. Lifting platform dimensions, 606' long x 105' wide.

Photo at lower right shows 16 vessels in workberths ashore at Astilleros Canarios, S.A., Las Palmas, Canary Islands.



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Dixilyn-Field To Use Hydranautics Equipment On Jackup Rig 87

Hydranautics Hydraulic Systems, Goleta, Calif., has announced that Dixilyn-Field's Rig 87, which is capable of drilling to 25,000 feet in water depths up to 300 feet, will use two Hydranautics 350-ton pin claw jacking assemblies for cantilever skidding and two Hydranautics 125-ton pin

claw jacking assemblies for drill floor skidding. The equipment is already installed on the Livingston Class 111-C jackup and is undergoing commissioning by Dixilyn-Field. The rig is under contract to Mobil for drilling off the coast of Nigeria.

According to Hydranautics, the installation includes a composite power unit and control console that will operate all of the hydraulic power tools.

Alnor Instrument Publishes Brochure On New Engine Temperature Monitors

A new four-page color brochure detailing the operations, features, and applications of a series of temperature analyzing instruments for diesel, natural-gas and gasoline-powered reciprocating engines has been published by the Alnor Instrument Company, Niles, Ill.

The brochure highlights the Micro 5300 Series engine temperature monitoring system offered in five different models: single engine, dual engine, engine-compressor, single turbine, and dual turbine. The new instruments feature high-speed scan rates, temperature averaging and deviation analysis as well as extensive alarm capabilities for immediate detection of abnormal engine operating conditions.

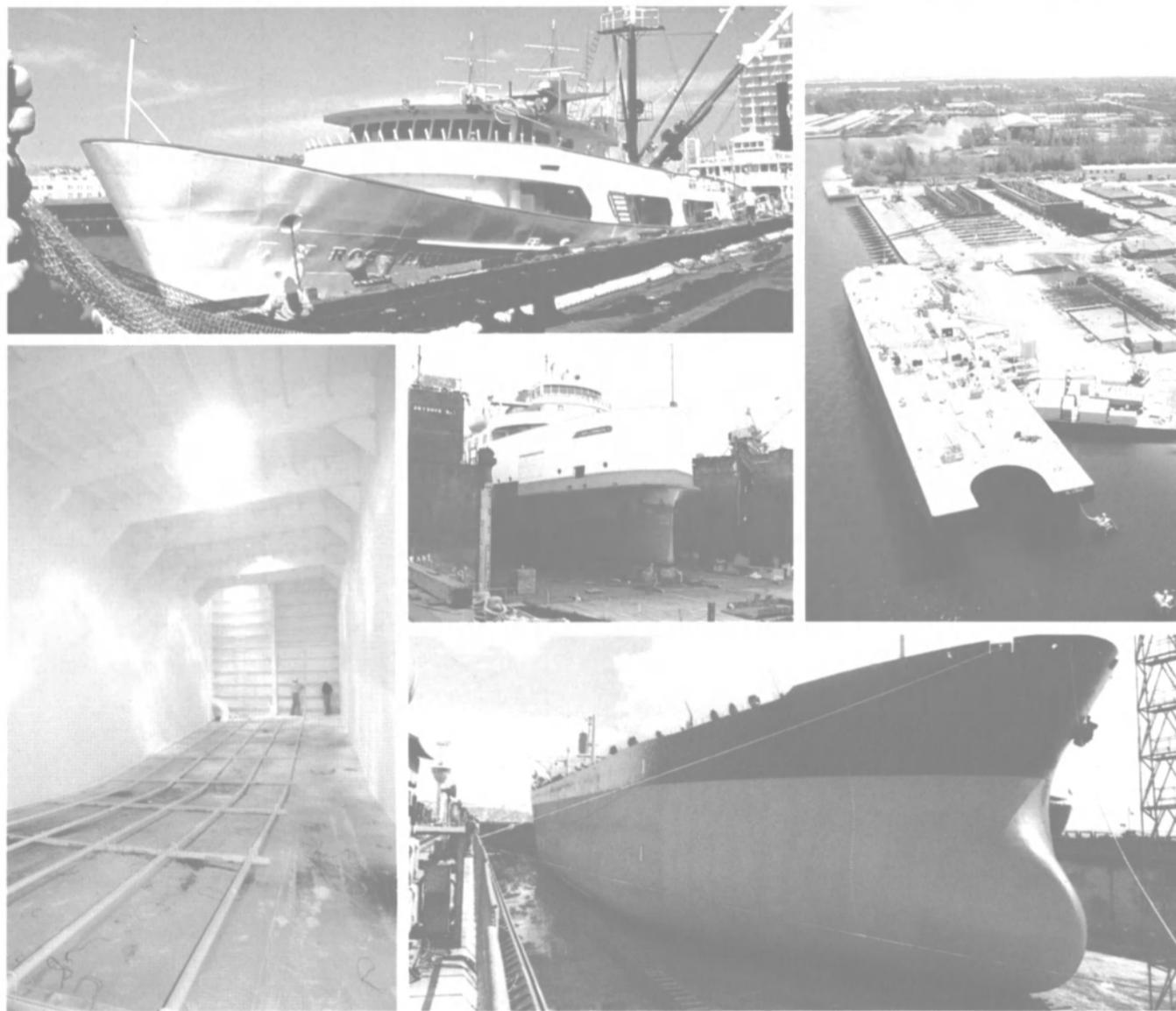
Designed to continuously monitor and display engine and turbine cylinder exhaust temperatures from engine startup through peak, the Micro 5300 scans up to 32 temperature zones at the rate of 60 inputs per second. Other engine temperatures, such as lubricating oil, cooling water and turbocharger and intake air, also may be monitored to warn of deviation from normal.

A full-color diagram explains features on the front panel, including 10-digit LED display, separate high-temperature and deviation alarm settings, and adjustable display rate knob. A memory circuit stores the readings as soon as an alarm is triggered, for later recall and analysis.

Specifications are listed in the brochure, including dimensions, temperature range, accuracy, and power consumption.

For a free copy of Alnor Micro 5300 brochure TM-23,

Write 32 on Reader Service Card



Here's how five shipbuilders and owners fight corrosion with Ameron marine coatings.

Ameron marine coatings meet quick turnaround requirements of tuna fishing vessel owners with high-performance coatings like Dimetcote® E-Z II, a new generation inorganic zinc in single-package formulation which reduces application labor costs and is easily applied.

Commercial vessels around the world depend on Ameron marine coatings like Amercoat® 70, a controlled-release flaked copper coating with economical anti-fouling protection benefits.

Barges protected by exterior Dimetcote/Amercoat marine



coatings are also protected by interior tank lining systems like Amercoat 64/386. This epoxy system resists a broad range of chemicals and solvents.

The world's first fleet of 326,000 DWT Very Large Crude

Carriers depended on the world's leading inorganic zinc primer, Dimetcote 3, as the foundation for an effective marine coatings system which produced dramatic economic benefits.

Find out how Ameron marine coatings can help you fight corrosion effectively. Write Ameron Protective Coatings Division, 201 North Berry Street, Brea, California 92621 for information or call (714) 529-1951.

Ameron

PCD81-9



Phillip J. Wright

Phillip J. Wright has been appointed managing director of Burnside Marine Terminal, Burnside, La. The announcement was made recently by Charles F. Jacques, vice president, Ormet Corporation, the parent company of Burnside Terminal.

"We are delighted to have a person of Mr. Wright's professional background and management experience," Mr. Jacques said. Mr. Wright has 25 years' experience in marine transportation, terminal management, and as a sales executive. He was graduated from the University of Tennessee and served as a ship's officer and stevedore in the U.S. Army.

Silver Knight Award For Carl R. Meurk Of Todd



Carl R. Meurk

Carl R. Meurk, executive vice president of Todd Pacific Shipyards, was the recipient of the National Management Association's Silver Knight award in the NMA Todd Seattle Chapter's special presentation recently at the Tyee Yacht Club.

The Silver Knight of Management is the highest award the NMA chapters can give an outstanding executive. This is the first major award that Todd Seattle Chapter, now in its third year, has bestowed on one of its own members.

The Seattle Chapter nominated Mr. Meurk for his outstanding contribution to the company and the shipbuilding industry for more than 30 years. Mr. Meurk, who is also vice president-West Coast of Todd Shipyards Corporation, has been associated with Todd Seattle for 22 of his 33 years with Todd.

\$6-Million Navy Order For Gas Turbine Recovery System

Solar Turbines Incorporated, San Diego, Calif., has been awarded a \$6,379,779 cost plus award fee contract for development of a gas turbine waste heat recovery system for use as a high efficiency cruise propulsion plant on non-nuclear combatants. The Naval Sea Systems Command is the contracting activity. (N00024-81-C-5340)

Great Lakes Transportation Publication Available

An inventory of American commercial shipping vessels used in ocean trade and on inland waterways is compiled and published annually in a three-part series by the Waterborne Commerce Statistics Center of the U.S. Army Corps of Engineers' Water Resources Support Center.

The center announced recently that the 28-page 1980 edition of Transportation Series 3, "Transportation Lines on the Great Lakes System," is available and may be purchased for \$1 from the New Orleans Engineer District, LMNED-S, P.O. Box 60267, New Orleans, La. 70160. Other parts of the series will become available in the near future.

Publish Literature On Stern Tube Lubrication System From Waukesha

Literature describing the company's automatic Circoolmatic oil circulation and cooling system for stern tube seal lubrication has been published by Waukesha Bearings Corporation, Waukesha, Wis. The system is recommended for 710 mm seal systems and larger.

Circoolmatic pumps oil from the forward seal through a sea-or-freshwater cooling system, providing maximum lubrication. Oil may also be used as a coolant and may be pumped from the mainstern tube bearing sump into the cooling coil, then into the main head tank.

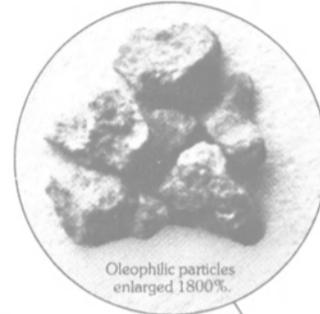
The Circoolmatic is a flooded circulating type system, with the seals, reservoir, and circulating

pump fitted and primed at all times to maintain seal oil at a satisfactory cooling level. Standard features included are a fail-safe alarm system; pilot lights indicating proper pump operation and adequate oil level; and an audible alarm that signals low oil level.

For a free copy of the literature on the Waukesha Circoolmatic system,

Write 14 on Reader Service Card

Oil/water separation made simple.



Chemically treated oleophilic particles are used for the exclusive integral, permanent filter bed.

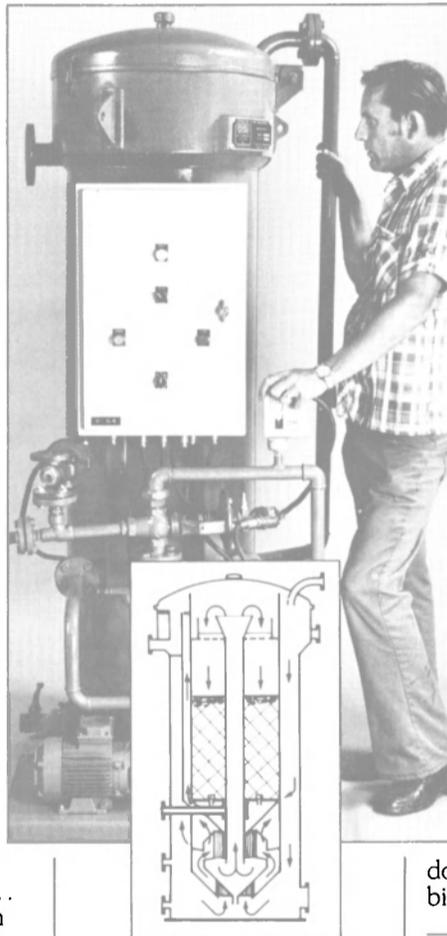
BUTTERWORTH SFC BW separators feature a permanent filter bed (no dirty cartridges to change, no messy disposal). Automatic operation without attendance is available. U.S. Coast Guard approved.

Special Filtering Material.

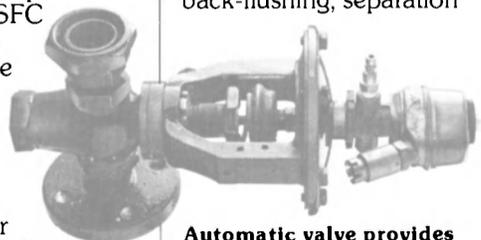
One outstanding feature of SFC BW (Separator Filter Coalescer Bilge Water) Oil/Water Separators is the permanent final filter bed. Composed of specially treated oleophilic particles, it can be used over and over again. With heavy use, an annual topping of 5% to 15% is the only filter bed maintenance required. Moreover, treated water discharges are typically less than 2 parts per million of oil... well below the maximum allowable 15 parts per million.

Unattended Operation with Automatic Option.

Because of the permanent final filter bed, SFC BW Separators ordered with the automatic option can operate unattended for weeks at a time. Whenever the filter bed reaches



a pre-set degree of oil saturation, a very accurate vacuum-operated controller stops separation, initiates a cleansing back-flush cycle and sounds an alarm. After back-flushing, separation



Automatic valve provides total "hands-off" operation.

automatically starts again.

The 20-minute back-flush cycle occurs only once every 12 to 24 hours of operation, depending upon oil concentration.

Unique Compact Design.

Because of the permanent filter bed, which requires only limited access annually, SFC BW units are very compact. All processing takes place in a single vertical cylinder requiring a minimum of deck space. A 2 cubic meter per hour unit, for example, is only 2 feet in diameter.

Every SFC BW unit is equipped with its own pumps designed to meet a vessel's needs. They do not rely on existing bilge pumps.

U.S.C.G. Approved.

In U.S. Coast Guard certification tests, BUTTERWORTH® SFC BW Oil/Water Separators exceeded U.S.C.G. and IMCO A.393(X) requirements.

SFC BW Oil/Water Separators have also been approved in conformance with A.393(X) by France, Germany, Greece, Italy, Netherlands, Norway, Poland, Sweden, United Kingdom, and Yugoslavia.

Get All the Facts.

SFC BW Oil/Water Separators are available with capacities from 1/2 to 10 cubic meters per hour. Write or call for full details... and for a copy of "From A to X about Oil/Water Separators". This six-page report has facts on MARPOL, IMCO, and U.S. regulations for shipboard oil/water separators.



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Cable: BUTTORTH
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d'Equipements Petroliers
11, rue du Pont V
76600 LeHavre, France
Phone: (35) 25.81.15
Telex: Sotran 190571 F

New Marine Equipment Catalog Offered By Willem Pot Of Holland

A 42-page catalog of the company's stock of ship's auxiliary machines and anchor and chain cable equipment has been published by Willem Pot B.V., Rotterdam, Netherlands.

Included are 46 categories of new and reconditioned equipment

available including deck machinery, engine room machinery, anchors and chain cable, and deck equipment. Each item listed includes a description, the number of units available, and technical specifications. There are several photographs as well as illustrative drawings and tables of specifications.

For a free copy of the catalog, Write 39 on Reader Service Card

Sudoimport Orders Jacket-Launching Barge From Blohm & Voss AG

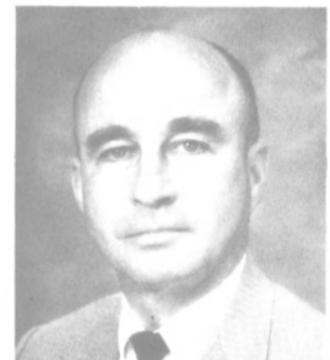
Representatives of Blohm & Voss AG, Hamburg, West Germany, signed a contract in Moscow recently with the Soviet foreign trade organization, Sudoimport, for the design, construction, and delivery of a special

service vessel for the USSR's Ministry of the Gas Industry.

The vessel is a 26,800-dwt jacket-launching barge capable of transporting jackets up to 18,000 tons for offshore platforms from the building yard to locations in the Caspian Sea, and then lower the jacket on site under controlled conditions.

The barge will be 163 meters long, by 45 meters wide, and 12 meters deep (about 535 feet by 148 feet by 39 feet). Delivery is scheduled for mid-1983. This is the second order Blohm & Voss has received from the USSR. Previously the company delivered the crane ship *Aserbajdshan*, with a lifting capacity of 2,500 tons, also for use in the Caspian Sea.

St. Louis Ship Names Richard D. Riter To New Quality Assurance Post



Richard D. Riter

The appointment of **Richard D. Riter** to fill the newly created position of quality assurance manager at St. Louis Ship was announced by **Edward Renshaw**, president.

Mr. Riter was the Department of Energy's Naval Reactors Representative at Norfolk Naval Shipyard for the past seven years. **Mr. Riter** was also at Newport News Shipbuilding on the staff of the Naval Reactors Office for 11 years. Prior to that time, he had a successful 21-year career in the U.S. Navy, going from seaman recruit to lieutenant.

The quality assurance manager will develop and manage a total quality assurance program at St. Louis Ship, Paducah Marine Ways and Caruthersville Shipyard, which comprise the Shipyard Group of Pott Industries Inc.

Hydranautics Relocates London Office

Hydranautics International, Goleta, Calif., recently moved its engineering and sales office in London to Balfour House, 590 Uxbridge Road, Hayes, Middlesex, UB4 ORY, England. Telephone number is 01-573-3681. Telex is 933469, Cable Caplon G. The London office represents both Hydranautics Hydraulic Systems and Hydranautics Water Systems.



At your service...

To help you to obtain effective utilization of vessels. This is Unitor's basic principle in developing systems and services to satisfy its customers requirements. UNITOR has three main objectives when selecting products:

1. **Quality.** The products must meet

the highest quality standards.

2. **Standardisation.** The user must be fully assured of service and availability of replacement parts world over.

3. **International availability.**

The same range of products should be available from all 55 offices and

160 agents within the UNITOR service network, covering 450 main ports. UNITOR is continuously striving to meet the demanding needs of today's modern shipping industry.



A wide range of products.

UNITOR offers a wide range of products and services for the operation, maintenance and safety systems on board vessels and offshore units.



Consultative service . . .

According to various needs from the smallest components to the complete installation designed and specified long before the keel is laid.



A special service systems . . .

is employed for regular service and maintenance work covering fire-fighting and safety equipment on board through an established follow-up system.

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Norway.
Phone 472 80 26 60.
Telex 16004.

Mid-Coast Delivers The Clemente Guillen



Mid-Coast Marine, Inc. of Coos Bay, Ore., announced the recent delivery of a 72-foot twin-screw towboat, Clemente Guillen (shown above), to Roca Fosforica Mexicana SA de CV of Mexico City. The vessel was designed by David J. Seymour, Ltd., naval architect of San Francisco, Calif. Home port will be Lopez Mateos, B.C.S.

The vessel was delivered under its own power to the Magdellena Bay area of Baja California. Features of the towboat are twin-screw 12v-149 Detroit Diesel engines rated at 700 hp, each driving four-blade Coolidge propellers in Mid-Coast Marine nozzles. The reverse gears are Twin Disc MG 520 (5:1 ratio). The bollard pull of the vessel exceeds 41,500 pounds and draws 6 feet 9 inches of water. The nozzles offer added protection to the marine life that uses the Boca de Soledad for shelter.

The duties of the towboat will be shifting construction equipment in the bay along with pushing 6,000-dwt barges loaded with phosphate to the export terminal in Magdellena Bay. The pilot-house vision is superb with eye level being 32 feet above the waterline. Top speed for the vessel is 12.2 knots and averaged 10.4 knots in the run down the coast to its home port.

This is the third vessel delivered to the Mexican firm from Mid-Coast Marine within the past year.

MarAd Grants Subsidy For Construction Of Blue Line's Landing Craft

The Maritime Subsidy Board has approved Japan as the representative foreign shipbuilding center for the calculation of the differential between U.S. and foreign costs for the subsidized construction of a twin-screw, steel landing craft ordered by Blue Lines, Inc.

The estimated foreign cost of building the 83-foot, diesel-powered vessel was set at \$364,000.

The vessel will be built by Atlantic Marine, Inc., Jacksonville, Fla., and is intended for operation in the Caribbean. The craft will be certified to carry combustible and flammable liquids in Department of Transportation approved trucks.

Literature Available On Satellite Services For Ships And Offshore Rigs

INMARSAT, the international maritime satellite organization, has published a four-color folder containing a dozen fact sheets with detailed information on the services it provides worldwide.

Established by international Convention on July 16, 1979, the

34-member organization will, in early 1982, assume the rendering of services now provided by the U.S.-owned MARISAT system.

The literature describes the INMARSAT organization and COMSAT's relationship to it; the INMARSAT system; coast earth stations and network coordination services; ship earth stations, and services and charges. Examples of its capabilities included are: 56 KBPS seismic transmis-

sion service; well log data transmission; offshore early warning system; modern marine management via INMARSAT. Also included is an overview of the MARISAT market and a listing of ships and offshore facilities currently equipped with MARISAT terminals.

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January 12, 1967: Commissioning of the first M 551 heavy fuel engine on the reefer "Pagensand" of the Hanse Kuhl-schiffreederei in Hamburg. This 8 Mu 551 engine of 3000 hp at 300 rpm has reached more than 65 000 heavy fuel hours.



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Fuel Conservation And Upgrading Of The Shipboard Boiler Plant

A.L. Christenson*

Most operators are not aware that just by operating their boilers within their design criteria, they can save 1.8 percent of their fuel costs. This fact was established by one owner over six years ago. Vessels operating under the U.S. flag today were, for the most part, designed and built in an era long before the present fuel crunch. They were, therefore, not designed with high fuel efficiency in mind. However, even on these vessels fuel rates can be improved and in some cases surpass their original designated rates.

To accomplish this, a thorough survey of the boiler is required, paying particular attention to refractory; burner throats, angles and dimensions; water sides to insure that no deposits are present; furnace-side-pressure parts are clean; external surface of steam air heaters for non-fouling; calibration and replacement of instrumentation; overhaul of soot-blowing equipment, and tightness check of all valves.

Combustion controls should be serviced and adjusted. This is an item that is frequently ignored and it should not be as excess air accounts for most of the heat loss up the stack.

Good instrumentation to monitor air and flue-gas pressure drops and stack temperature should be installed. Stack temperature is extremely important as it is an indication of your boiler efficiency. Most of the older vessels do not have flue-gas analyzing equipment. Therefore, an electronic flue-gas analyzer, preferably with chart recorders, should be installed. This expense is justified by savings experienced from better surveillance and control.

Most of the older plants were designed for 15 percent excess air operational. This can be improved at a relatively low cost. In some cases, it is possible to reduce it to 10 percent with a corresponding improvement in performance and maintenance. Fuel quality is most often blamed for boiler foul-

ing problems. However, fuel quality is only one of the contributing factors. There are many documented cases where chronic boiler fouling problems have been eliminated by improving combustion, without any change in fuel quality.

Minimizing combustion air saves fuel, not only by increasing flame temperature, but also by minimizing boiler-tube fouling and refractory slagging. In addition, the decrease in dioxide content retards the corrosion rate of furnace-side metals. The evidence on boilers operating at 5 percent excess air as compared to 15 percent excess air is quite dramatic. Units on 5 percent have operated for periods of two years with no water washing of fire-sides as compared to a cleaning cycle of three to six months for units on 15 percent.

With fuel conservation and reduced fuel cost in mind, many owners have decided to run their vessels at reduced speed. The boiler designers should be consulted and their recommendations solicited prior to attempting this type of operation. Operation of the boilers at reduced loads can lead to accelerated deterioration and an increase in maintenance costs. If it is anticipated that reduced load operation is to be a long-term condition, it may be possible to modify the boilers and auxiliary equipment for optimum performance at that load. Should a reduction of 50 percent be in consideration, it is recommended that one boiler operation be utilized.

Modifications

In upgrading a boiler plant, we must recognize that more emphasis is being put on the refineries to obtain higher quantities of distillates from a given barrel of crude, resulting in a degradation of the bunker fuels used by the majority of our merchant vessels. It has long been recognized that sulfur, vanadium and sodium are the chief constituents of a fuel oil which contribute to operation difficulties. Special consideration must, therefore, be given to compensate for these degraded fuels. One area of major concern is the economizer.

High sulfur fuels tend to promote dewpoint corrosion and fouling in the economizer tube-bank

area. This problem has been dealt with in the past and material design changes have been made to aid in combating the "cold-end corrosion."

If the feedwater heating arrangement is such that the feed temperature is below 280°F, provision should be made to raise it to this level to aid in avoiding dewpoint corrosion. In the economizer, the use of "Corten" or low-alloy steel fins and low-alloy tubes in place of carbon steel will give improved dewpoint corrosion resistance. By using cast-iron gill rings in the top 20 percent of the economizer, the problem of sulfuric acid attack may be minimized.

In this continuing battle of the fuel rate, we have recently examined the possibilities of upgrading an existing 24,000-shp tanker plant. This plant has the standard three feedwater heater economizer cycle operating at 850 psig, 930 F superheat. By adding equipment and incorporating features shown on the heat balance in Figure 1, it is estimated that a 4 percent savings in the fuel rate can be achieved.

These changes encompass the addition of a secondary economizer, one 1-p heater, one h-p heater, replacing steam air ejectors with vacuum pumps, modifying feed-pump turbines to operate on superheated steam, added extraction from h-p turbine, cascading drain system and increasing superheat temperature from 930 F to 950 F. If the vessel were on a long run, such as Persian Gulf to the U.S. or Europe,

an attached generator could be included at minimal expense, resulting in an additional savings of 1 percent in the fuel rate.

Another method of plant upgrading presently under consideration is that of modifying an existing nonreheat to reheat. A complete change out of boilers does not appear to be economically feasible. However, adding a reheater section to the existing plant does.

One approach to this concept is to install the reheater in a refractory lined box that is separately fired by a combustor, as is done in separately fired heat recovery applications. This arrangement simplifies reheat control requirements and does not interfere with the normal operating functions of the main boilers. It is estimated that this modification would result in a 4 percent fuel savings on a plant of approximately 30,000 shp.

Coal Firing

In today's environment no upgrading evaluation would be complete unless consideration was given to coal firing. By the year 2000 it is projected that fuel-oil costs will be exorbitant. One owner's representative recently made the statement that the biggest problem facing U.S.-flag carriers is that of the costly conversion from steam turbine to diesel-powered ships. If the projections as indicated are correct, it would appear that he is heading in the wrong direction. The conversions he speaks of are reported to be

(continued on page 48)

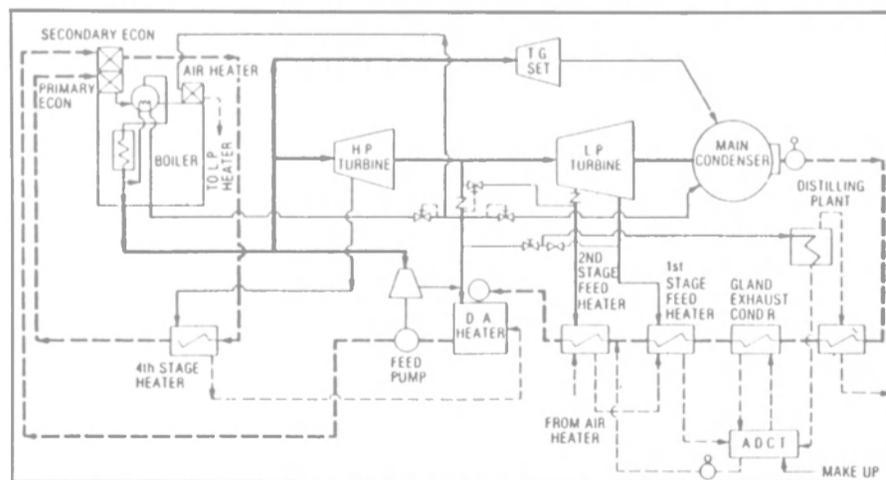


Figure 1 — Heat balance of upgraded 24,000-shp tanker plant showing added equipment and other features to provide a 4 percent savings in the fuel rate.

*Mr. Christenson, vice president-sales and service, Foster Wheeler Boiler Corporation, presented the paper condensed here before a recent meeting of The Society of Marine Port Engineers, New York.

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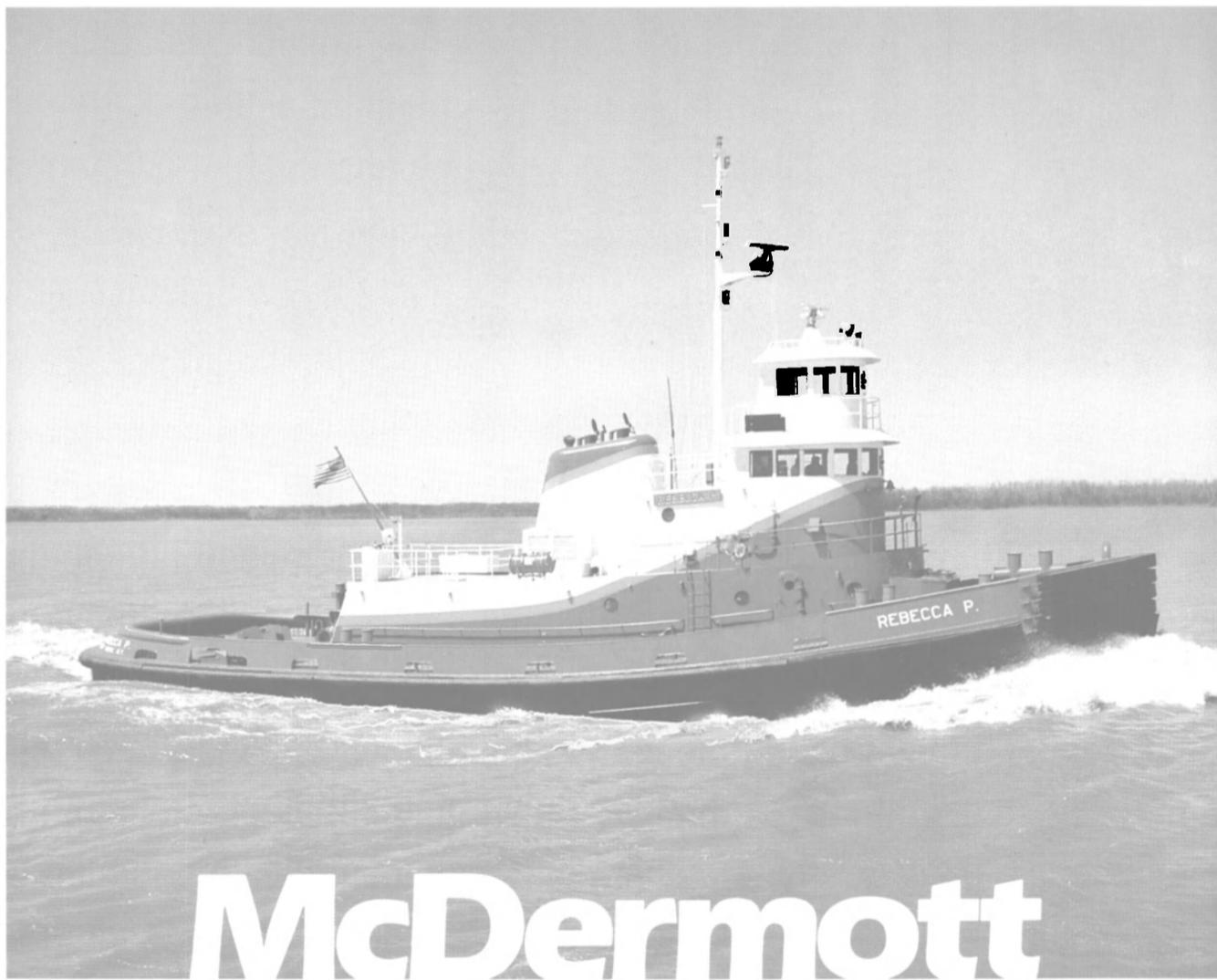
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Upgrading Of The Shipboard Boiler Plant

(continued from page 46)

in the area of 15 to 20 million dollars per ship. This is a sizable investment when you are looking for a quick payback on your outlay. I believe the advantages of converting to coal, even when you consider that reboiling is re-

quired, far outweigh the diesel conversion approach.

On coal firing, history points out that this is not something which is new; we are simply improving on existing technology. Major improvements have been made in the last 30 years in metallurgy, design and manufacturing techniques used in modern marine boilers, as well as the fuel-

burning fuel-handling systems employed.

The coal-fired marine plant will utilize a readily available and economical stoker coal. Present day prices, February 1981, place stoker grade coal at \$2.201 per million Btu versus oil at \$5.20 per million Btu. The prices based on dollars per million Btu equate to \$212 per ton for bunker "C" oil

and \$55 per ton for stoker-grade coal.

The economics, based on a 20,000-shp plant operating 300 days a year at rated power, show that the oil-fired plant consumes 173.75 million Btu per hour. This translates into \$6,505,200 per year. The coal-fired plant would consume 180.00 million Btu per hour, which represents an annual cost of \$2,851,200. Thus, the fuel cost savings by using coal would be \$3,654,000 per year.

The added cost for the coal-fired plant with coal bunkers, fuel and ash handling equipment is estimated at \$3,000,000 per ship above that of an oil-fired steamship. Obviously, any investment that can be written off in less than four years is well worth investigating.

The classification of coal under consideration for marine application today is stoker-grade bituminous, which is still available in numerous areas of the United States and the world for marine bunkers.

A present-day land coal-fired boiler generally consists of a combustion system which burns pulverized coal in suspension in the furnace, or stoker-fired units which burn coal on a fixed or moving grate system. Coal-fired utility boilers generally use pulverized coal systems simply because a stoker cannot accommodate the huge quantities of fuel consumed.

Coal pulverizers and the burner system are generally designed for a specific coal. This does not present a problem for land-based plants. Marine bunkering coals, however, will vary in specifications and may not be acceptable to a pulverizer system as originally designed.

We, therefore, feel that a stoker-fired boiler is the best present-day solution for coal firing aboard a vessel. The stoker will more readily accept changes in the fuel specification which are likely to occur in marine coal bunkers.

The main shipboard coal bunkers proposed are of the hopper-bottom type. Transportation of the coal from the extraction point at the main bunker to the day bunker can employ one of two basic systems available. One system is mechanical and the second is a pneumatic transport system. The mechanical coal feed system configuration can vary depending on the machinery space layout.

It is estimated that a reboiling conversion to coal-firing units would be in the five to seven million dollar range. This includes removal of existing boilers, installation of all new equipment, plus an insert into the hull structure for coal bunkers.

In conclusion, in a world which is subject to liquid fuel prices rising uncontrollably and with rapid degradation of liquid fuel, coal is a viable alternate for shipboard application.

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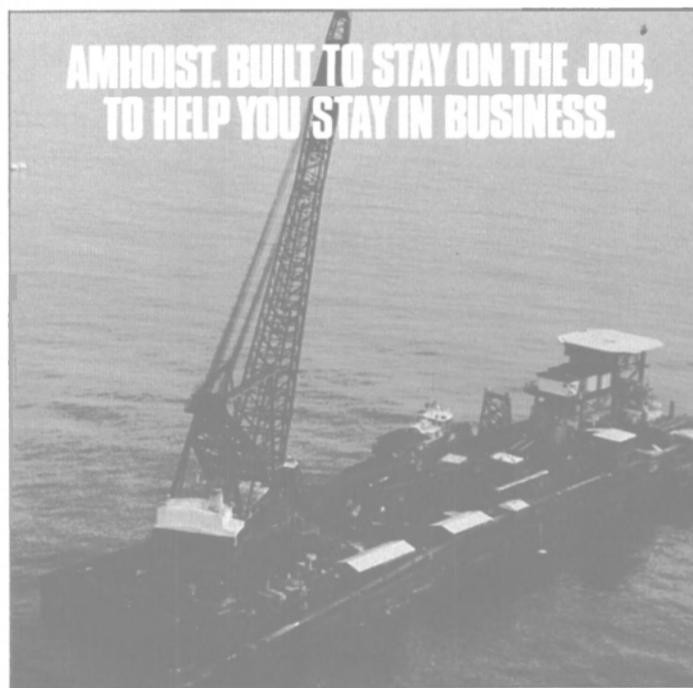
At Amhoist, we have the experience and engineering expertise to design and build lifting equipment for every type of energy project. Our standard marine cranes come in capacities of 30 to 3,000 tons; larger sizes can be custom-engineered for specific applications. Current Amhoist products range from huge barge- and ship-mounted revolvers to the new Sea Horse pedestal crane for materials handling aboard offshore oil rigs.

Lucker Pullers — our revolutionary linear hydraulic "cable grip" devices — can be used singly or combined in different ways for an endless variety of lifting, pulling, and positioning tasks. Because they're low in profile and pack a lot of power into an efficient package, they can be used in applications that would be impractical for bulkier mechanical winches and windlasses.

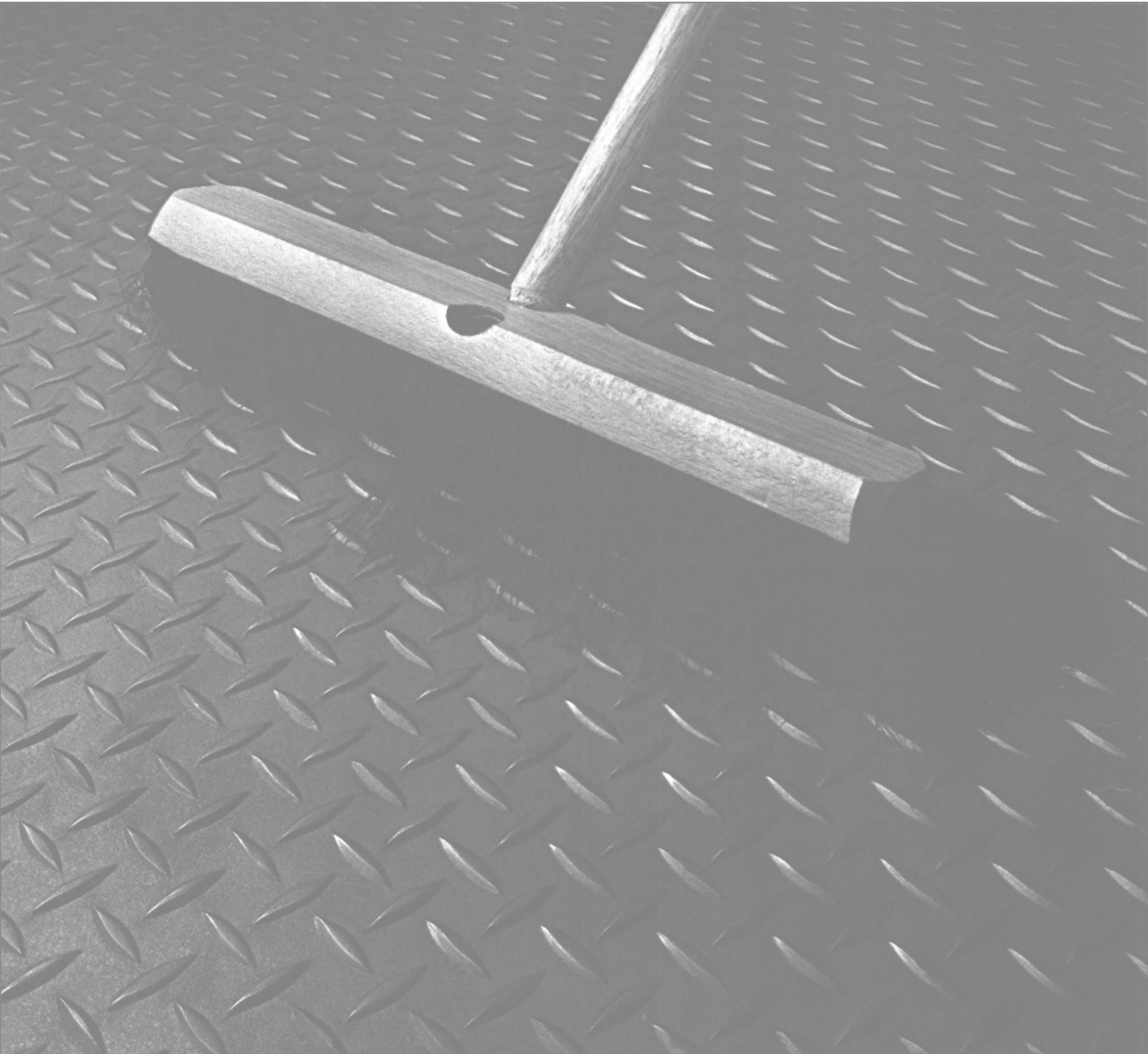
We also manufacture American stiffleg derricks in many configurations and sizes for use on barges, ships, platforms, or gantries. They offer excellent cost efficiency and adaptability with low maintenance.

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work tables, truck floors, tailgates and kick-plates.

Ask your Steel Service Center about the many sizes or thicknesses available. Or contact your nearest Lukens sales office for further information.



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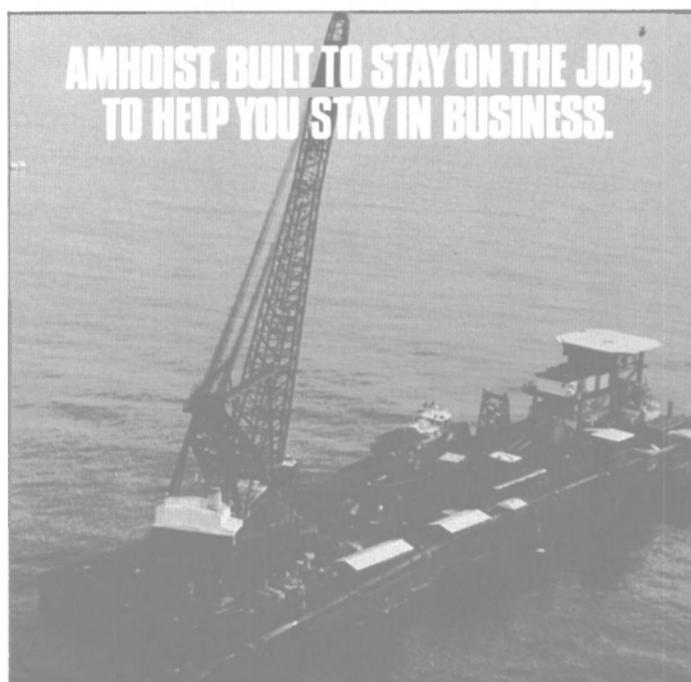
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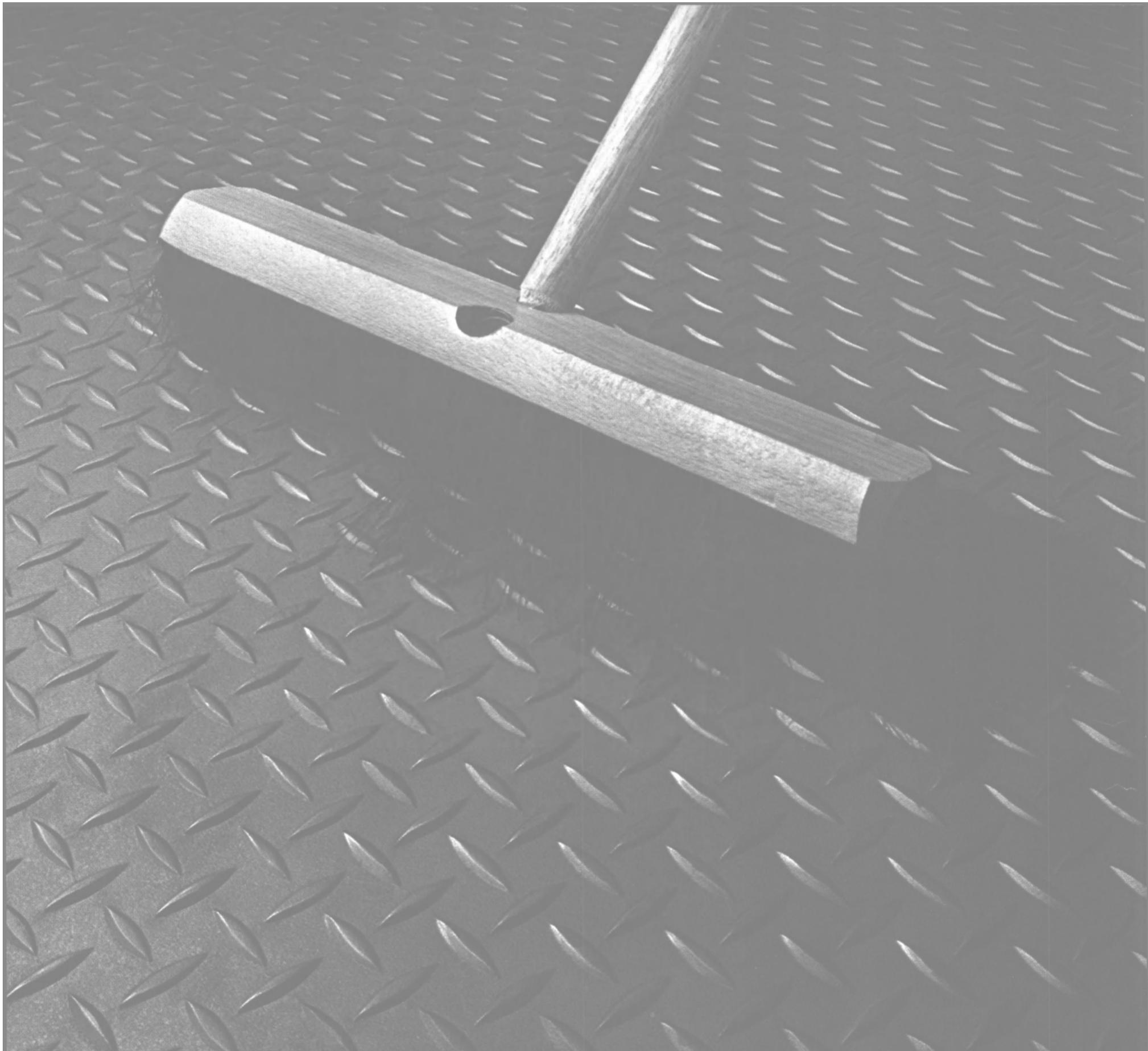
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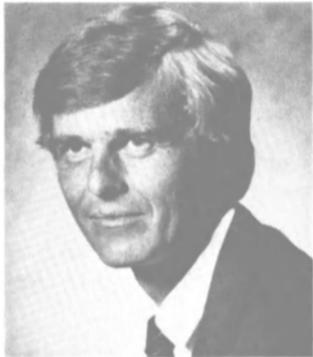
James Carey Sworn In As A Maritime Commissioner

Alan Green Jr., Chairman of the Federal Maritime Commission, has announced that James Joseph Carey was sworn in recently as a Federal Maritime Commissioner. Mr. Carey will complete a term expiring June 30, 1985.

The new commissioner served as a senior business executive with Telemedia, Inc., Chicago. Mr. Carey also has an extensive background with the Naval Reserve.

Simrad Headquarters Moved To Seattle, Name Ulven VP

Simrad, Inc., a major manufacturer and distributor of marine electronic equipment, has relocated its corporate headquarters from Armonk, N.Y., to Seattle, Wash.



Trond Ulven

Trond Ulven, newly appointed vice president and general manager of Simrad, responsible for all domestic sales and services, cited "distance between us and our Pacific Basin suppliers" as the primary reason for the recent coast-to-coast move. Simrad's East Coast office will continue in operation as a field office, Mr. Ulven said.

Simrad, Inc. has grown from a single employee in the mid-60s to its current domestic operations of 16 persons. Simrad's offices are located at 2215 Northwest Market Street, Seattle, Wash. 98107.

Krupp Marine Will Distribute Tyne Products —Literature Available

John A. Gerrets, general manager of Krupp Marine International Limited, a New Orleans-based ship repair firm and custom designer and builder of marine-related products, announced that it has been designated sole U.S. distributor for Tyne Gangway Limited's extensive line of aluminum accommodation ladders, gangways, and other ship-board required aluminum products. Krupp Marine International Ltd. has been engaged in the ship repair service business for almost 40 years and offers full above-the-waterline ship repair service.

For literature on Tyne aluminum products,

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HUDSHIP To Build Two 176-Ft. Supply Vessels

Wendle W. Huddleston, president and chief executive officer of Hudson Shipbuilders, Inc. (HUDSHIP), recently announced that a contract has been signed for the construction of two 176-foot offshore supply vessels for an unnamed client.

The two vessels will be deliv-

ered from the Pascagoula, Miss., yard during the second quarter of 1982 and the third quarter of 1982.

The vessels will measure 176 feet by 40 feet by 14 feet 6 inches and will be powered by twin Detroit Diesel 16V149 engines driving through Twin Disc Model MG 540 reverse/reduction gears rated at 6:1 ratio. Auxiliary power will be provided by twin 75-kw Delco E-7344 gensets

powered by Detroit Diesel 6-71N engines. Maneuverability will be enhanced by a Schottel S152L 300-hp bowthruster driven by a GM 8V-71 engine.

Tank capacities have been designed to accommodate 61,000 gallons of fuel oil, 20,000 gallons of potable water, and 233,000 gallons of ballast water.

The crew accommodations are designed to provide quarters for 19 people in six staterooms.

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National Marine Completes Acquisition Of Riverways Ship Repair Facilities

National Marine Service Incorporated of St. Louis, Mo., has announced completion of its acquisition of the assets of Riverway Co.'s ship repair facilities north of Lock and Dam 26 at Grafton,

Ill. The yard will operate under the National Marine name and will complement services provided at the National Marine Hartford, Ill., yard located on the south side of Lock 26, some 22 miles to the south. Drydocking as well as fleet and shifting services will be available at both locations.

The National Marine Service shipyard at Hartford, Ill., offers

full-service facilities for barge and towboat repairs. Its yard at Harvey, La., in addition to repairing inland vessels, also provides full-service facilities for deeper-draft ocean tugs and offshore supply vessels. The diesel engine repair services of National Marine are widely recognized as among the most expert available anywhere. Repair crews service

the needs of customers in all parts of the world. E.E. Ahlemeyer, president of the shipyard division, is in charge of all these activities.

National Marine Service, one of the NICOR basic energy companies, is a leading supplier of liquid bulk transportation services on the Mississippi River and Gulf Coast.

How does a 25-ton forklift carry a 250-ton load? Easy. With the versatile new Lift-Loader.™

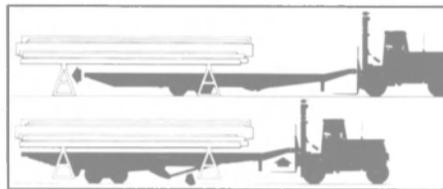
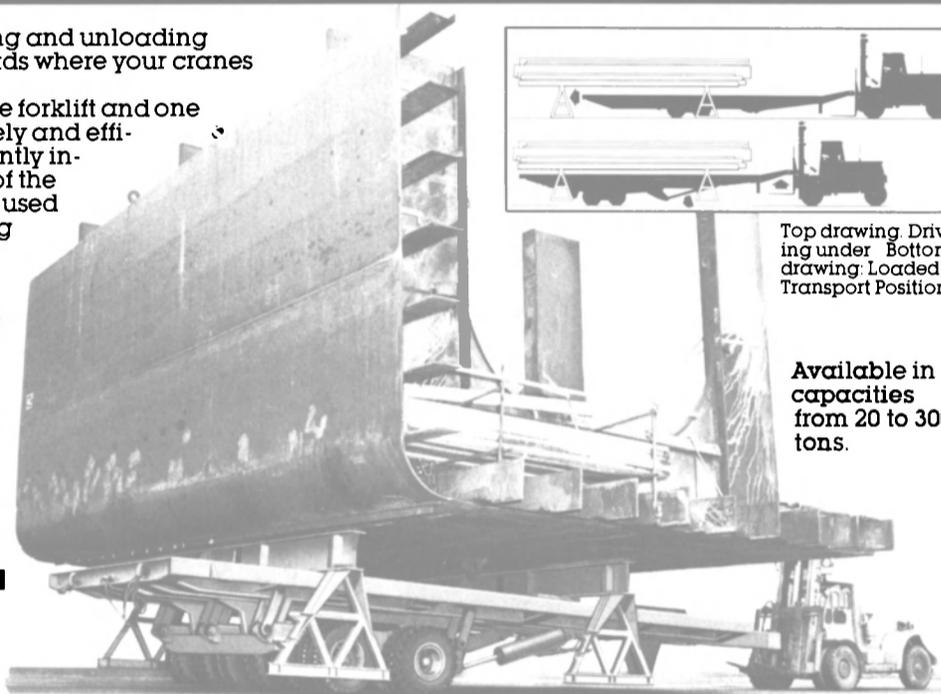
The Lift-Loader is a self-loading and unloading semi-trailer that can handle loads where your cranes can't.

In fact, with the Lift-Loader, one forklift and one man can do the work of ten, safely and efficiently. The Lift-Loader significantly increases the handling capacity of the conventional forklift and can be used as a one-man material handling and storage system. This avoids double and triple handling in crane-operated storage yards. And the Lift-Loader is backed by over 25 years of industrial usage.

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Top drawing: Driving under. Bottom drawing: Loaded/Transport Position.

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York Names Rogers Sales Manager For Gulf Coast Region



Ray H. Rogers

Ray H. Rogers has been named manager of a new marine sales office that Borg-Warner Corporation's York-International marine, military and government unit is opening in Houston, Texas.

He will be responsible for sales and customer application support of air-conditioning and refrigeration systems for Navy, barge, and commercial ships in the Gulf Coast region.

Mr. Rogers, a registered professional engineer since 1966, has 15 years' experience in selling engineered equipment, including industrial instruments and control systems.

Chevron Develops New Delo 1000 Marine Oil —Literature Available

An eight-page color brochure detailing the Chevron International Oil Company's new Delo 1000 marine engine oil has been published by the company.

The oil, an alkaline detergent/dispersant cylinder and crankcase oil, is designed to meet the most severe requirements of medium-speed, trunk piston diesel engines operating with distillate fuel or black marine diesel oil with sulphur contents up to 1.5 percent.

The brochure contains information on oxidation and thermal stability, rust and corrosion protection, and field and laboratory tests. A typical properties chart is included as well as photographs of test results.

The Delo 1000 oil was developed by Chevron's Central Laboratories, Rotterdam, Netherlands, and at Chevron's Research Co., Richmond, Calif. For further information and a free copy of the brochure,

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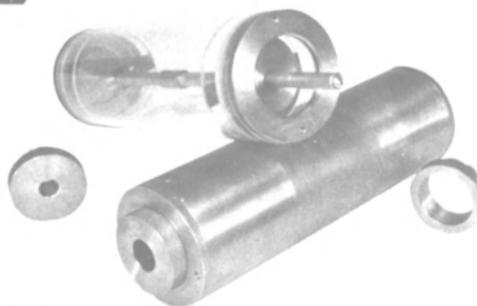
One Z-BOM sampler (patent pending) allows you to take accurate samples at any level - zone, bottom or off-bottom.

Its unique interchangeable construction was designed to meet your needs. Visual inspections are now convenient with the optional clear plexiglas body. It is also easier to clean.

Available units come in brass, or stainless steel. For further information, call or write Zesco, Inc.



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Maritime Reporter/Engineering News

Halter Names Lensmyer Marketing Manager For The Inland Waterways



Frank G. Lensmyer Jr.

Frank G. Lensmyer Jr. has joined Halter Marine, Inc., New Orleans, La., as marketing manager for the inland waterways.

The announcement was made recently by James A. Cobb, Halter vice president-sales, who said the new position was created to utilize Mr. Lensmyer's extensive knowledge of marine operations in the inland waterways and harbors.

Prior to joining Halter, Mr. Lensmyer had been president of SSI, Inc., Houma, La., a steering systems, monitoring, and radar company which he founded in 1962. He also formed and was president of F&L Industrial Electronics, New Orleans, from 1950 to 1962.

Pump Mount PTOs Described In New Catalog From Twin Disc

An eight-page catalog (333-M) illustrated with photographs, schematic drawings, and containing technical specifications and dimensions on their line of pump-mount power take-offs has been published recently by Twin Disc, Inc., Racine, Wis.

The units are designed for use with engines of from 50 to 800 hp and are available in designs of from one to four pump mount versions. Special fabrication to a customer's requirements, as well as a package of standard options are also described.

For a free copy of catalog 333-M,

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Marine Fabricators Deliver First Of Two Supply Boats For Arrow Marine

Arrow Marine, Inc., Houston, Texas, has taken delivery of the M/V Arapaho Arrow, the first of two 120-foot supply vessels being built by Marine Fabricators, Inc., of Green Cove Springs, Fla.

The Arapaho is fully certified by the U.S.C.G. and carries an A.B.S. International Load Line certificate. The vessel is powered by two Detroit Diesel 16V92 engines developing 1,200 continuous horsepower. The two 40-kw Delco auxiliaries are powered by Detroit Diesel 471 series engines. The vessel is equipped with a full

complement of electronics: radar, Loran C, depth finder, 12-channel single-band radio, and a 56-channel VHF.

Some special features which are not typical to this length vessel are its deck capacity and accommodations. The Arapaho is certified to sleep 17 industrial personnel in bunks, in addition to the crew. The 22-foot by 60-foot deck area will hold 120 tons of cargo.

Lyons Named Controller Of Ryan-Walsh Stevedoring

James M. Lyons was recently named controller of Ryan-Walsh Stevedoring Company, Inc., Mobile, Ala., and its subsidiaries. Mr. Lyons will be located in the Ryan-Walsh Center in Mobile where the company maintains its corporate headquarters. Mr. Lyons will handle financial and

accounting aspects of the company's stevedoring, terminal, and related operations, and for other permanently maintained offices in Beaumont, Texas; New Orleans and Lake Providence, La.; Gulfport and Pascagoula, Miss.; Pensacola and Panama City, Fla.; and Georgetown, S.C. Mr. Lyons was previously vice president and controller of Mobile Infirmary and Gulf Atlantic Corp.

The competition hopes you don't read this.

Tracor's Satellite/Omega navigation system combines the accurate, all weather, worldwide satellite fixes of Transit with the continuous position fixing capability of Omega. The 60 second Omega fix is updated automatically to agree with the position provided by each good satellite fix. Between satellite fixes, Omega inputs are used to enhance automatically the dead reckoning of the satellite navigator. Warning alerts are lighted whenever Omega or Transit experience an anomaly or if the preset range limit between the Satellite/Omega position and the satellite only DR position is exceeded.

Our competition hopes you don't discover Tracor's Integrated system is comprised of two stand-alone systems providing total redundancy. There is no shared hardware.

They hope you don't discover Tracor's Satellite Navigator II is type approved by

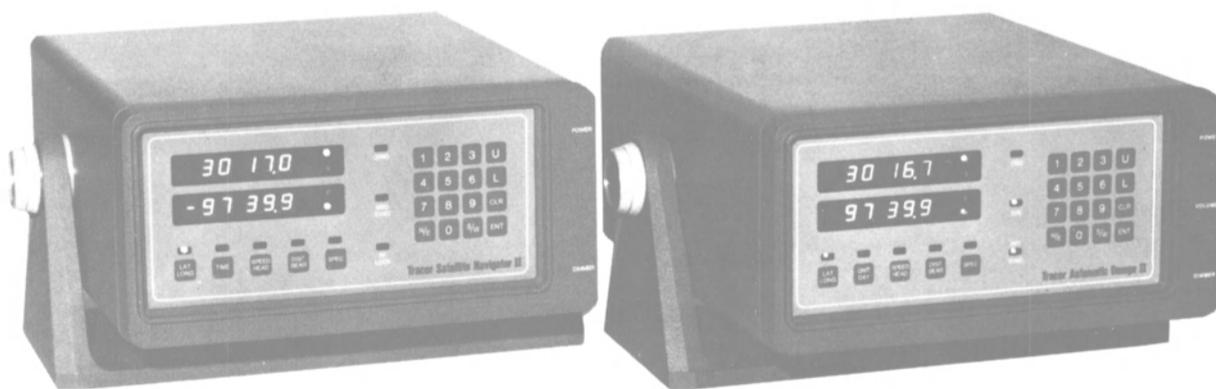
DNV, DHI, Swiss PTT, the Norwegian Maritime Directorate, and DSRK.

They hope you don't discover Tracor's three frequency Automatic Omega II has been awarded the NMEA Omega award based on demonstrated performance and reliability for the fourth consecutive year.

They hope you don't discover Tracor's worldwide service network which provides factory trained personnel in more than 70 major shipping ports supported by factory consigned spare parts.

Finally, our competition hopes you don't discover there is a way to save \$10,000 when purchasing a Satellite/Omega navigation system.

Discover Tracor. For your free copy of the Technical paper entitled "Integrated Satellite/Omega Navigation Systems" as well as brochures and further details of Tracor's advanced navigation systems, call or write today.



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Armco's New Wire Rope Offers Rotation Resistance
—Literature Available

Armco's Union Wire Rope has announced a new wire rope that offers, for the first time, rotation resistance without sacrificing strength or crushing resistance. The new product overcomes the deficiencies that have been in-

herent in other rotation-resistant ropes.

It is engineered for use on overhead cranes with a single hoisting line and in other applications that require minimal block spinning while retaining a high load capacity level. Union Wire Rope's new product is a 10 by 19 rope, consisting of 10 outer strands wrapped around a specially designed core. Each strand

is of a 19 Seale construction. A patent is pending on the design.

Rotation resistance, or low torque characteristics, is possible because the 10 by 19 rope's outer strands are laid in an opposite direction to that of the core. The rope's special core is said to provide more steel area than the ones used in other rotation-resistant rope designs. It offers better resistance to drum crushing, and

improved outer strand support. The result is extended service life on cranes using multilayer winding.

For more information and free literature on the new rope,
Write 28 on Reader Service Card

Greenwood Appointed Vice President-Marine At Pickands Mather



John O. Greenwood

Pickands Mather & Co., Cleveland, Ohio, recently announced the appointment of **John O. Greenwood** as vice president-marine. Mr. Greenwood assumed his new duties following the retirement of David A. Groh.

Mr. Greenwood joined Pickands Mather in 1970 as an administrative assistant in the Marine Department. He was named assistant to the marine vice president in 1975 and assistant vice president-marine in 1980.

Mr. Greenwood is recognized as one of the leading authorities on the history of Great Lakes shipping. He has written many books dealing with the Lakes trade, including the annually published "Greenwood's Guide to Great Lakes Shipping" and the multivolumed series "Namesakes of the Lakes."

New Instrument Permits NDT Of Fiberglass Hulls
—Literature Available

A new ultrasonic gage that measures the thickness of fiberglass walls usually to within 0.01 inch has been developed by Krautkramer-Branson, Inc., Stratford, Conn.

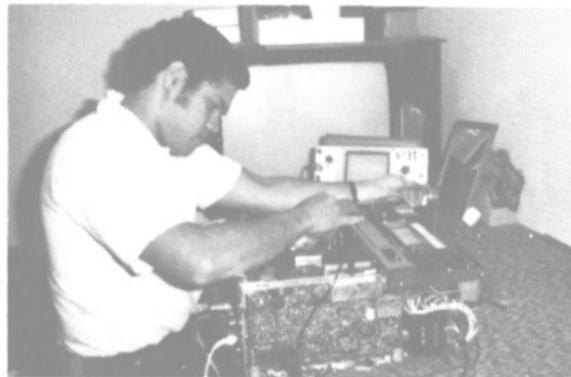
The instrument, known as Model 202F, permits the nondestructive thickness measurement of fiberglass products such as boat hulls, pipes, storage tanks, and pressure vessels. The instrument makes its measurements from only one surface of the materials.

Because the instrument works by bouncing sound waves off surfaces or discontinuities in the material, it instantly reveals flaws such as delaminations and air bubbles. The 15-ounce instrument gives precise readings on most fiberglass compositions at thicknesses up to three and one-half inches.

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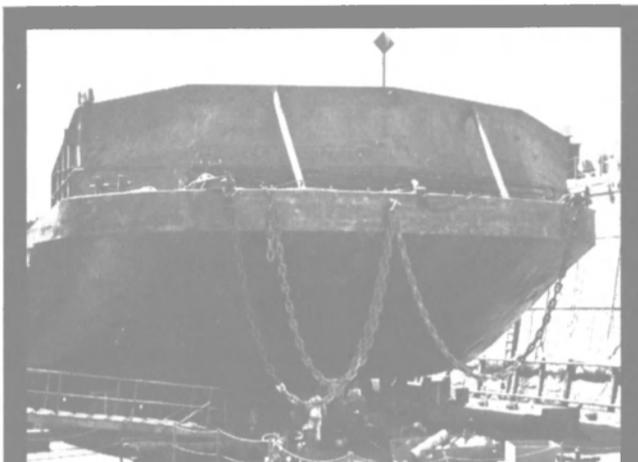
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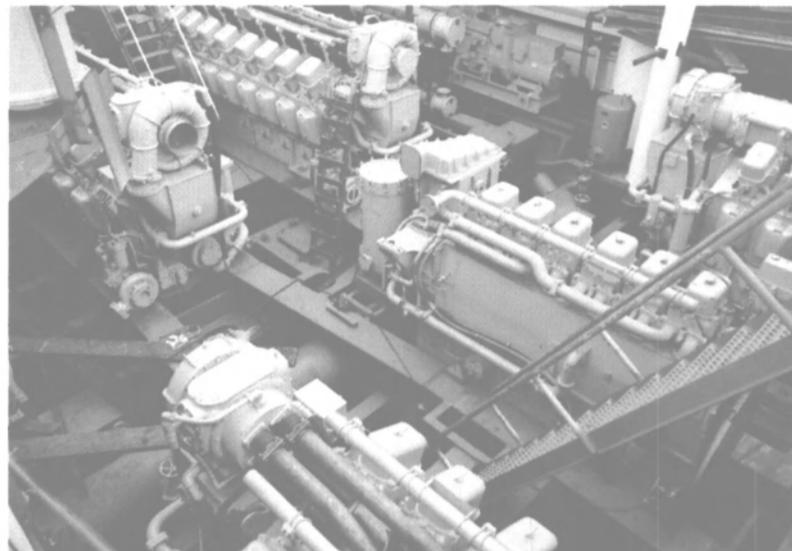


Bring us your repair jobs, from the simplest barge to the most sophisticated destroyer. We're right at home with complicated propulsion systems, power systems, electronics, or sheet metal welding. From a quick nose job to a complete overhaul or conversion, we'll get your vessel back in service in the shortest time possible. We have the facilities, and experienced people with lots of pride. We also have the sharpest pencils in the Northwest. Let us quote on your job.

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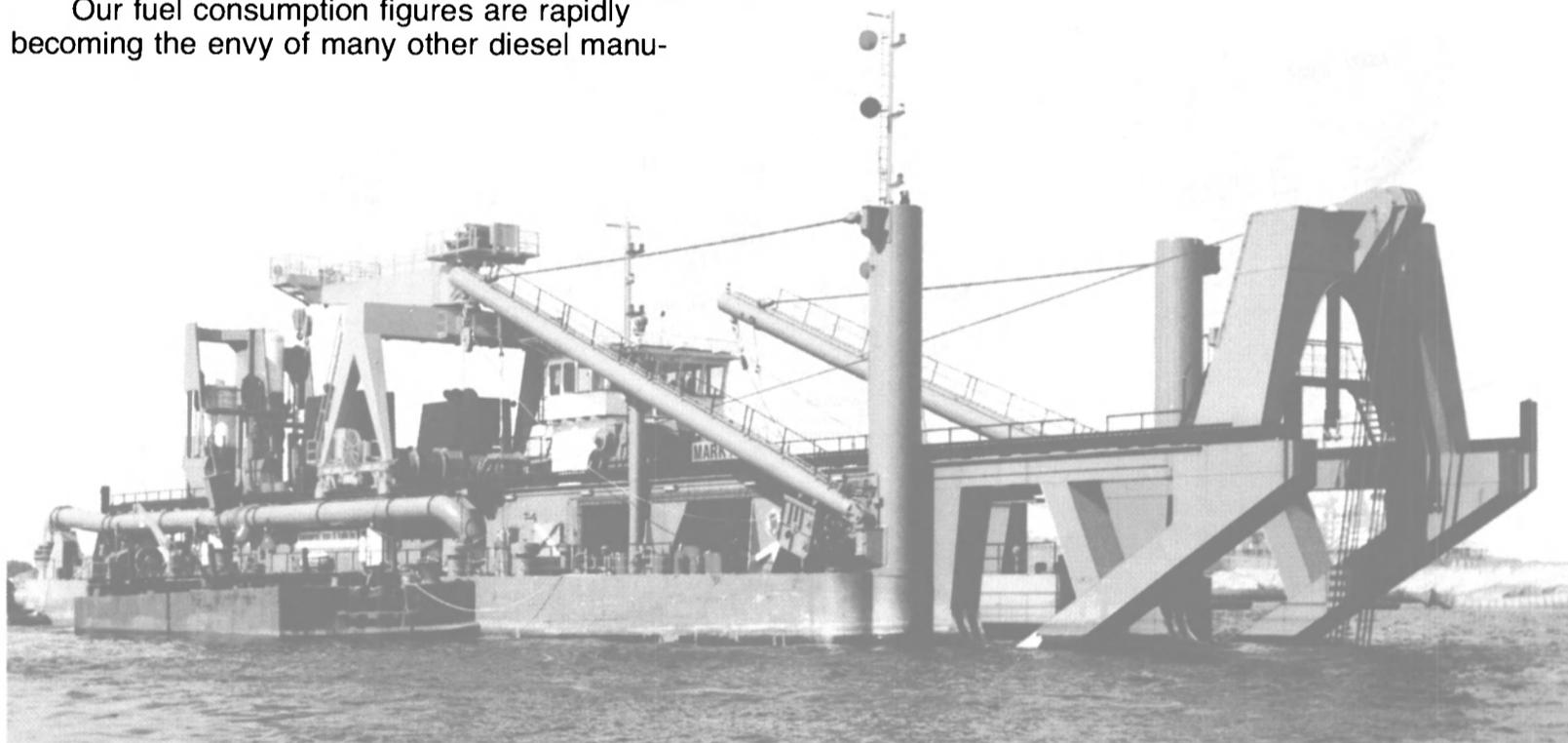
Owners or operators of vessels operating on the inland waterways or oceans of the world rely on their power plants for three important reasons: Performance, Reliability, and Economy. ALCO diesels are outstanding in all three categories.

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facturers and users. But we are not stopping here—further improvements in many areas are in the works, including dual fuel and spark-ignited gas engines.

All of this is the result of years of diesel experience—a joint total of three and a half centuries within the GEC Diesel Group of which ALCO is a part. Tie this to ALCO's continuing investment program at its Auburn, New York manufacturing facility to incorporate the most modern features of production technology in the manufacture of diesel engines, and you will readily recognize the dedication ALCO has to its present and future customers.



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**New Pall Filter Medium
For Hydraulic/Lube
—Literature Available**

Pall Industrial Hydraulics Corporation, Glen Cove, N.Y., has added a new grade of filter medium to its Ultipore® line of filter elements for hydraulic and lube oil service. Designated "US" grade, the new medium has an

absolute removal rating of 12 micrometers and a β_{10} rating of 25 as measured by the ISO Multi-pass Test (ISO 4572).

It has been designed to optimize element life while still providing protection against abrasive wear in hydraulic and lube systems. The new "US" grade elements can withstand a differential pressure of 150 psid. They demonstrate superior cold start

performance and low clean pressure drop, and are compatible with all common oil, water-base, or synthetic fluids.

Filter elements incorporating the new medium are available for the full range of Pall high and low pressure filters. This includes 6,000 psi filters with flows to 375 gpm, as well as low pressure filters, including spin-ons, Ultivoir® in-tank return filters, 8300

high flow (to 600 tpm) filters, and the recently introduced Rotolok™ series of 600 psi filters.

For more information,
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**Name Thomas Shideler
General Manager Of
ITT Barton Instruments**



Thomas J. Shideler

The appointment of **Thomas J. Shideler** as general manager of ITT Barton Instruments, City of Industry, Calif., has been announced by **Don Evarts**, president of the Barton Division. Mr. **Shideler** joins Barton from Beckman Instruments in Fullerton, Calif., where he served as general manager of the Helipot Division from 1980-81.

ITT Barton is a major producer of high-technology instruments for control and monitoring of fluids, including their pressure, differential pressure, level, flow, temperature, density, and composition.

**Omnipure Produces Five
Waste Treatment Units
—Literature Available**

Literature describing five models of waste water treatment units is available from Omnipure, a division of Sigma-Chapman, Inc., Houston, Texas.

Omnipure uses an electrocatalytic waste treatment process for treating black and gray waters when seawater is available. The units use no consumables, require no additives, and have no on-board storage. The units are built for installation on offshore platforms, support vessels, and ocean-going vessels. The units can operate intermittently in freshwater with the installation of a chamber and addition of agricultural grade salt lick periodically.

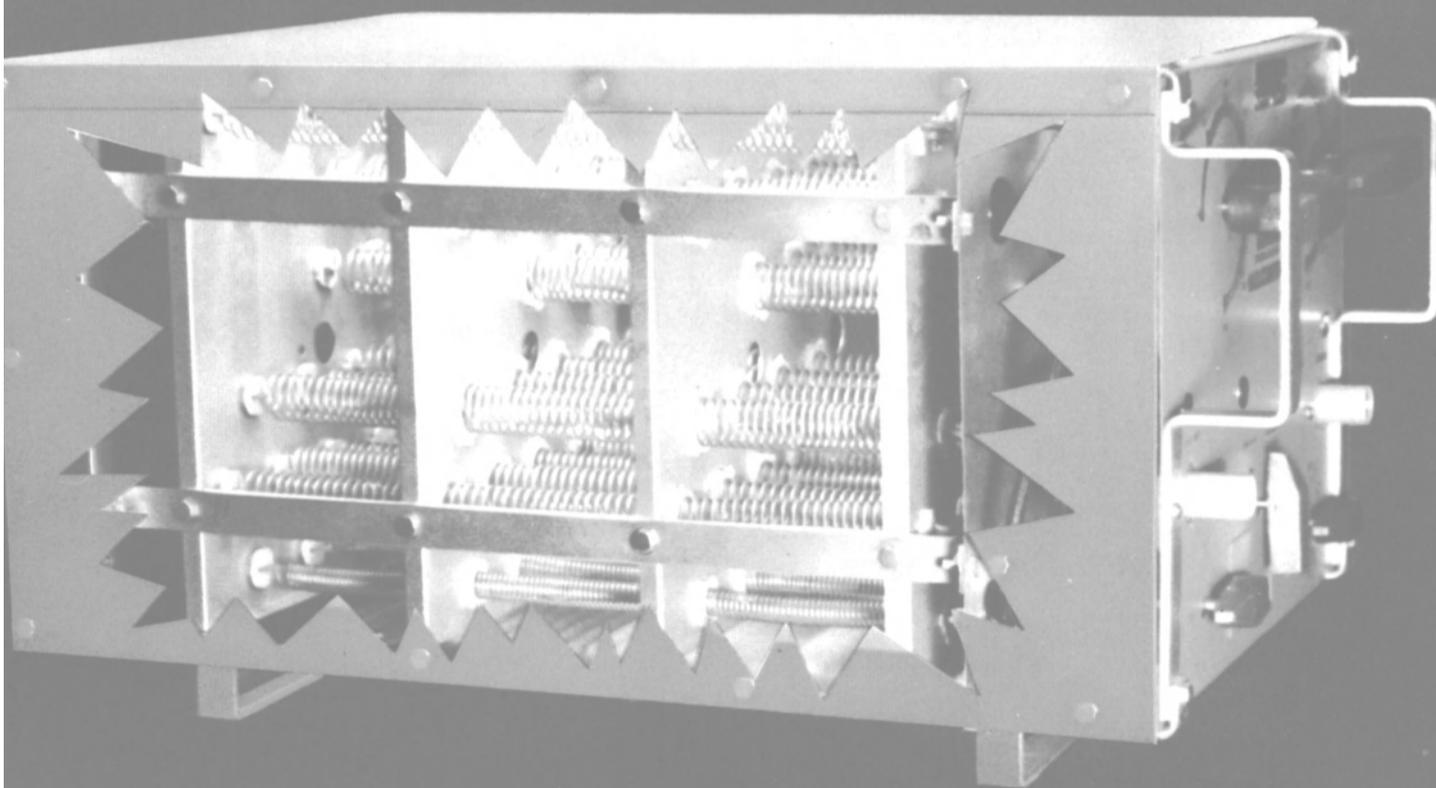
The pre-assembled lightweight units come in five sizes that serve crews from 13 to 300 persons.

The Omnipure four-color brochure includes flow diagrams and design information. For a free copy,

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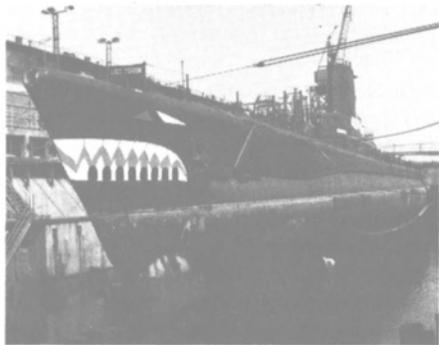
pendent tests by end users under actual field conditions. The potential for significant savings stems from two aspects: that of welding only from the most advantageous side of the joint, and the higher deposition rates made possible with ceramic backing.

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"FISH" OUT OF WATER — The USS Torsk submarine, built at the Portsmouth Naval Shipyard in New Hampshire in 1944 and the last submarine to fire a torpedo and sink a ship during World War II, gets a routine drydocking for testing, cleaning, and painting at Bethlehem Steel Corporation's Baltimore repair yard. The Torsk now is a tourist attraction in Baltimore's Inner Harbor and drew 96,000 visitors in 1980.

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New High-Pressure Pump Has Speeds To 20,000 RPM —Literature Available

Literature has been published on a new Worthington high-speed pump with helical gearing for quiet dependable operations that can reach speeds up to 20,000 rpm.

Recommended for high-pressure applications, the horizontal

high-speed pumps have capacities to 300 gpm and heads to 4,000 feet. They were developed for refinery, chemical and petrochemical applications such as hydrocarbon charge and injection services.

Horizontal configuration of the pumps eliminates the need for vertical motor supports and avoids excessive bearing loading inherent in vertical models. Field

maintenance is easier and any driver can be used. The pump design features a closed, angled-vane impeller for stable head characteristics and high efficiencies. The gear box is fan-cooled, eliminating the need for water cooling in most applications.

For additional information and literature on the Worthington high-speed pump,

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Burton Delivers 224-Ft. Seiner, Second Of Seven For Van Camp

Burton Shipyard, Inc., Port Arthur, Texas, recently delivered the 224-foot tuna vessel *Patrician*. The steel-hulled tuna purse seiner is the second of a seven-vessel contract awarded to Burton by Van Camp Sea Food Co., a division of Ralston Purina Co., and is jointly owned by Van Camp and Capt. Manuel Vargas. The purse seiner will operate primarily with the Pacific fleet, docked in San Diego, Calif., and will fish the Pacific Ocean for skipjack and yellowfin tuna.

The *Patrician* measures 42 feet wide, with an 18-foot draft, and cruises at 16 knots. The vessel is designed to operate with a crew of 21, and is capable of carrying a 1,200 short-ton payload of frozen tuna.

The *Patrician* will travel through the Panama Canal and into the Pacific, fishing the eastern Pacific waters before being intro-



EMD-powered *Patrician* shown on sea trials.

duced to the San Diego tuna fishing community.

The new tuna seiner is propelled by a turbocharged EMD marine diesel engine developing 3,600 shp at 900 rpm. The 20-cylinder engine drives a 132-inch-diameter, five-blade stainless-steel propeller, built by Avondale, through a Falk 5.033:1 reduction/reversing gear. Shaft speed development is rated at 179 rpm. Auxiliary power for the

vessel is provided by three Caterpillar D-353 TA diesels with 300-kw Kato brushless generators. The ship's bow thruster is a Bird Johnson model 10/35/FP with direct Caterpillar drive.

A passive stabilizer has been incorporated into the hull structure and was engineered by John J. McMullen Associates. Fishing gear and hydraulic equipment are by Marco and include a model WS444 purse seine winch and the Puretic power block model B56-61990-185. A Whaley model B-102-H hydraulic ring stripper is also provided.

The ammonia systems utilize Vilter components which were subcontracted by Refrigeration Systems of New Orleans, La.

Navigational aid and communications equipment, provided and installed by Marine Electric of San Diego, Calif., consists of a Magnavox 1102 satnav receiver, Furuno FRJ-100 and DRA-1064 radars, FE812 depth sounder, FDK-245 ADF and scanning sonar. Other nav/com gear includes Sperry MK 37 gyrocompasses, gyropilot, Furuno weather recorder model FAX 143, and a broad assortment of radio communications equipment.

A helicopter rides on the pad located on the wheelhouse top. A private stateroom is provided for the pilot and his mechanic, who also have a workroom on the boat deck.

Five outboard chase boats are stored on both the boat deck and the upper deck. The diesel powered skiffs were purchased from Mauricio & Sons of San Diego.

The *Patrician* is also fitted with a Red Fox model 750M biological treatment sanitation system.

The vessel is equipped to stay at sea for as long as three months at a time before bringing her payload of tuna back to San Diego.

Burton expects delivery of the third tuna vessel, the *Deolinda*, to be in early 1982. Delivery of the seventh boat will be accomplished in 1983.

Second Wind-Assisted Diesel Propelled Ship Building In Japan

A second coastal tanker designed for wind-assisted diesel propulsion will be delivered soon by Imamura Shipbuilding, Kure, Japan, to Aitoku Co., owner of the first such commercial sailing vessel.

The second ship, the *Aitoku Maru*, will take Japanese sail research one stage further and differs in one crucial respect from her predecessor. The first ship, *Shin Aitoku Maru*, was built with her two masts and sails in place, and performance results could not be compared with any reference data for that ship.

The *Aitoku Maru* has been built initially as a normal power-driven vessel so that full data on the bare vessel can be obtained before the sails are fitted later.

In hull design, the *Aitoku Maru* is similar to *Shin Aitoku Maru*. Propulsion machinery, however, will be a Daihatsu medium-speed 60SMA-32F diesel with reduction gear rather than the earlier ship's derated and slow-speed Hanshin diesel engine.

Other changes are a different arrangement of internal hull divisions and a slightly smaller area for the sails when these are eventually fitted.

As in the earlier ship, *Aitoku Maru* will



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60-day delivery
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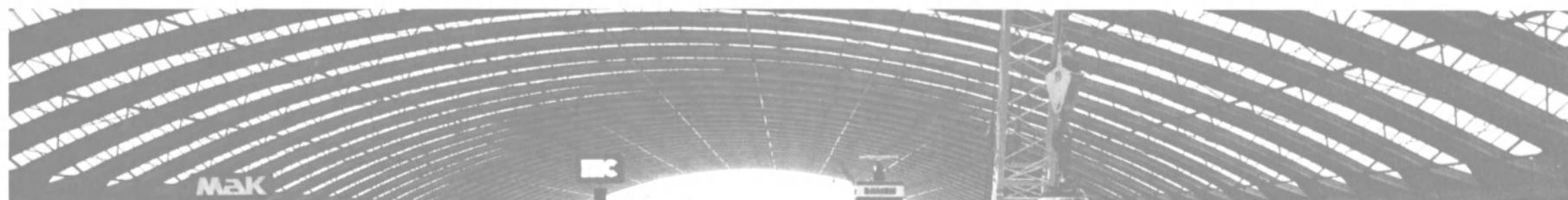
Those are two major advantages to consider about the Levco 360° 5-ton revolving crane. In addition, it's easy to service by your own mechanics and most parts are galvanized or inorganic zinc coated for complete protection against corrosion.

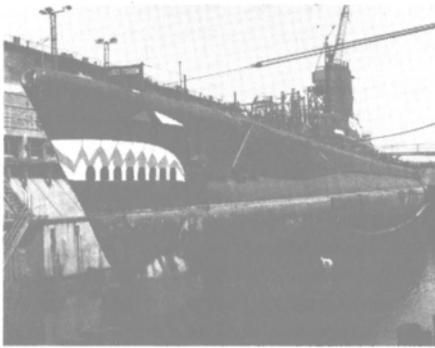
The Levco crane is also available with several options: 2 air powered models (manual or power swing) and 2 hydraulic models (diesel or electric). And although the standard boom is 30', booms up to 50' can be ordered.

As if that weren't enough, our starting price is only \$35,000. Contact Fred Hazard at 713/283-2506 or write P.O. Box 579, Woodville, TX 75979.

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Kockumation goes coast-to-coast in a big way.

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Telex: 32740 kockua s MR

Burton Delivers 224-Ft. Seiner, Second Of Seven For Van Camp

Burton Shipyard, Inc., Port Arthur, Texas, recently delivered the 224-foot tuna vessel *Patrician*. The steel-hulled tuna purse seiner is the second of a seven-vessel contract awarded to Burton by Van Camp Sea Food Co., a division of Ralston Purina Co., and is jointly owned by Van Camp and Capt. Manuel Vargas. The purse seiner will operate primarily with the Pacific fleet, docked in San Diego, Calif., and will fish the Pacific Ocean for skipjack and yellowfin tuna.

The *Patrician* measures 42 feet wide, with an 18-foot draft, and cruises at 16 knots. The vessel is designed to operate with a crew of 21, and is capable of carrying a 1,200 short-ton payload of frozen tuna.

The *Patrician* will travel through the Panama Canal and into the Pacific, fishing the eastern Pacific waters before being intro-



EMD-powered *Patrician* shown on sea trials.

duced to the San Diego tuna fishing community.

The new tuna seiner is propelled by a turbocharged EMD marine diesel engine developing 3,600 shp at 900 rpm. The 20-cylinder engine drives a 132-inch-diameter, five-blade stainless-steel propeller, built by Avondale, through a Falk 5.033:1 reduction/reversing gear. Shaft speed development is rated at 179 rpm. Auxiliary power for the

vessel is provided by three Caterpillar D-353 TA diesels with 300-kw Kato brushless generators. The ship's bow thruster is a Bird Johnson model 10/35/FP with direct Caterpillar drive.

A passive stabilizer has been incorporated into the hull structure and was engineered by John J. McMullen Associates. Fishing gear and hydraulic equipment are by Marco and include a model WS444 purse seine winch and the Puretic power block model B56-61990-185. A Whaley model B-102-H hydraulic ring stripper is also provided.

The ammonia systems utilize Vilter components which were subcontracted by Refrigeration Systems of New Orleans, La.

Navigational aid and communications equipment, provided and installed by Marine Electric of San Diego, Calif., consists of a Magnavox 1102 satnav receiver, Furuno FRJ-100 and DRA-1064 radars, FE812 depth sounder, FDK-245 ADF and scanning sonar. Other nav/com gear includes Sperry MK 37 gyrocompasses, gyropilot, Furuno weather recorder model FAX 143, and a broad assortment of radio communications equipment.

A helicopter rides on the pad located on the wheelhouse top. A private stateroom is provided for the pilot and his mechanic, who also have a workroom on the boat deck.

Five outboard chase boats are stored on both the boat deck and the upper deck. The diesel powered skiffs were purchased from Mauricio & Sons of San Diego.

The *Patrician* is also fitted with a Red Fox model 750M biological treatment sanitation system.

The vessel is equipped to stay at sea for as long as three months at a time before bringing her payload of tuna back to San Diego.

Burton expects delivery of the third tuna vessel, the *Deolinda*, to be in early 1982. Delivery of the seventh boat will be accomplished in 1983.

Second Wind-Assisted Diesel Propelled Ship Building In Japan

A second coastal tanker designed for wind-assisted diesel propulsion will be delivered soon by Imamura Shipbuilding, Kure, Japan, to Aitoku Co., owner of the first such commercial sailing vessel.

The second ship, the *Aitoku Maru*, will take Japanese sail research one stage further and differs in one crucial respect from her predecessor. The first ship, *Shin Aitoku Maru*, was built with her two masts and sails in place, and performance results could not be compared with any reference data for that ship.

The *Aitoku Maru* has been built initially as a normal power-driven vessel so that full data on the bare vessel can be obtained before the sails are fitted later.

In hull design, the *Aitoku Maru* is similar to *Shin Aitoku Maru*. Propulsion machinery, however, will be a Daihatsu medium-speed 60SMA-32F diesel with reduction gear rather than the earlier ship's derated and slow-speed Hanshin diesel engine.

Other changes are a different arrangement of internal hull divisions and a slightly smaller area for the sails when these are eventually fitted.

As in the earlier ship, *Aitoku Maru* will have two masts with rigid sails, totaling 160 square meters when spread. The design of the first ship was based on a hoped-for 50 percent fuel saving compared with a conventionally propelled vessel of her size.

Since delivery a year ago, she has been employed on coastal services in Japan and



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sea crossings to China during which extensive tests have been conducted to establish actual in-service results.

On one trial voyage of just over 330 hours, of which about 41 percent was under sail, an average speed of 11.04 knots was attained with an average engine output of 832 bhp, including electric power generation. Displacement of the 1,600-dwt vessel varied between 1,170 and 2,090 tons and the midships draft between 2.65 and 4.38 meters (9 and 14 feet). Average fuel consumption for the voyage was 129.4 liters per hour.

The thrust gained from use of sails reduces main engine output, an effect of an automatic load control computer maintaining a preset ship speed. The computer also can over-pitch the cp propeller so that the slip percentage remains constant.

An automatic computer controls the hydraulically driven sail functions, including opening, closing and trimming, to provide best results from prevailing wind conditions.

The sails on the Shin Aitoku Maru are rectangular, laminar flow-type rigid steel and canvas, 8 meters wide by 12.15 meters high.

The main engine is derated from an output of 2,000 bhp at 280 rpm to 1,600 at 250 rpm. Because of the lower engine speed a larger propeller has been used and engine fuel consumption is also helped by the option to use heavy fuel.

A shaft generator system using a variable capacity hydraulic pump is also claimed to reduce consumption of higher grade oil.

AITOKU MARU

Length	217 ft.
Beam	35 ft.
Depth	17 ft.
Draft	16 ft.
DWT	1,600 tons
Main engine	Daihatsu 6DSMA-32F mcr 1,600 at 500 rpm
Sails	(2) rigid
Sail area	160 sq. m.

Hitachi Zosen Delivers Car Carrier Toyofuji 7



The 10,848-dwt, diesel-powered vehicle carrier Toyofuji 7 (shown above) was delivered recently to Toyofuji Kaiun Kaisha, Ltd. of Japan by Hitachi Zosen, Tokyo. The ship was built at the Setoda Shipyard of Naikai Zosen, a Hitachi affiliate.

The vessel is 178 meters long by 29 meters wide by 26.2 meters deep (approximately 584 by 95 by 86 feet), and can transport up to 4,024 passenger cars and small trucks, as well as knockdown assembly car components and freight containers.

The Toyofuji 7 is powered by a Hitachi B&W twin-bank diesel engine, type 2x8K45-GTCA, providing a service speed of 18 knots. The seventh and eighth of the ship's 12 car decks were specially designed: the aft compartments have elevator decks to load containers, while the fore compartments are used to hold cars. The ship is fitted with ramps at the stern and midships. The midship ramp is adjustable to three different heights enabling cars to exit and enter from the fifth to seventh decks.

November 1, 1981

Bayou Black Delivers All-Aluminum 'Frontier I'

Bayou Black Shipyard of Gibson, La., recently delivered one of several 42-foot all-aluminum crewboats — the Frontier I — to Frontier Marine of Morgan City, La.

The vessel has a length of 42 feet, a beam of 13 feet, and a depth midship of 6.5 feet. Fuel capacity is supplied by an independent 300-gallon tank located in the lazarette. Main propulsion of the vessel is provided by two Detroit Diesel 6-71 engines, each rated at 174 bhp at 1,800 rpm, driven through Allison model M reduction gears supplied by George Engine Co. of Morgan City.

Propellers furnished by Toups Propellers of Abbeville, La., are 28-inch by 28-inch Columbian bronze hydrosonic. Shafts are 2-inch stainless steel. Both engines are electric start with power provided by two 12-volt dc batteries. The vessel's air-conditioning power is provided by a two-cylinder John Deere 7½-kw generator.



George Engine supplied the Detroit Diesel propulsion engines for "Frontier I."

Electronic equipment consists of a Standard Horizon VHF-FM radio, and a model No. 240 Mark II Furuno radar. Engine controls are Morse and the steering system is a self-contained hydraulic type. The vessel is USCG certified to carry 16 passengers and a crew of two.

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Three New Vice Presidents Named At CDI Marine Co.

Paul I. Beining, president of CDI Marine Company, Jacksonville, Fla., recently announced major changes in the organizational structure of the company.

Donald W. Jett has been promoted to executive vice president responsible for the operation of the firm's nationwide network of marine design offices. Mr. Jett,

a member of CDI Marine management since 1974, previously served with Newport News Shipbuilding as a member of the hull structural design division engaged in both aircraft carrier and submarine design.

James C. Gibson Jr. has been promoted to vice president, southern region. His responsibility is for the technical direction and accomplishment of all engineering and design work performed

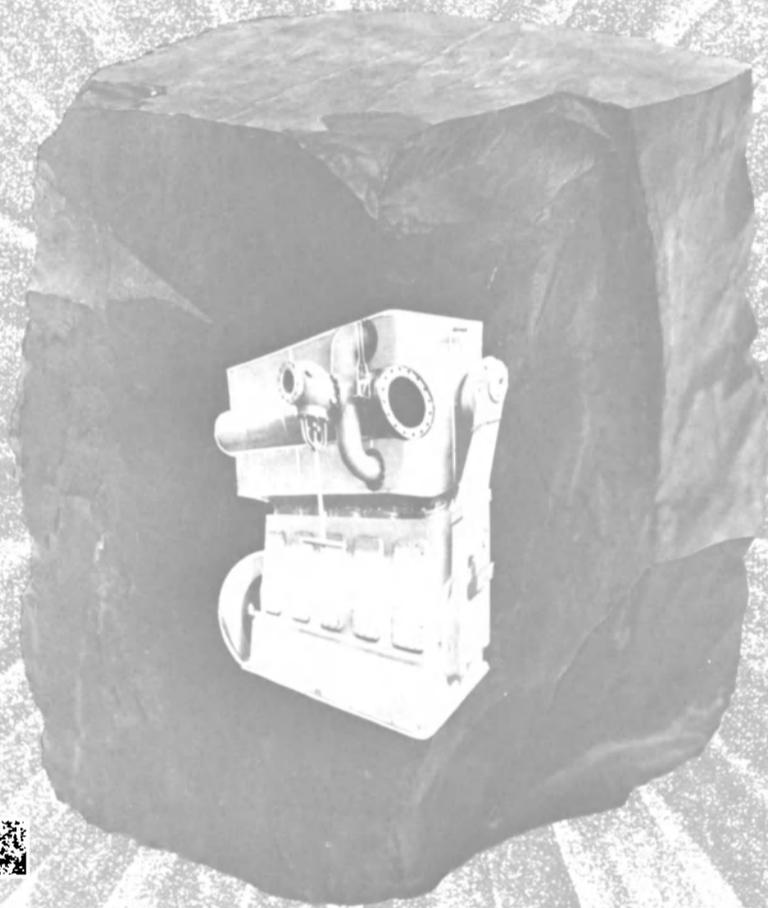
in the Jacksonville, Charleston and Pascagoula offices. Mr. Gibson has been with CDI Marine Company since he retired from the U.S. Navy with the rank of captain.

Jimmy R. Phillips has been promoted to vice president, northern region, which includes the Boston, Groton, Philadelphia, Hampton, and Chesapeake design offices. Prior to joining CDI Marine in 1976, Mr. Phillips worked

with Newport News Shipbuilding as a member of the machinery design division engaged in the design of submarines, cruisers and aircraft carriers.

CDI Marine Company, a major division of CDI Corporation of Philadelphia, is a supplier of naval architectural and marine engineering services to shipyards, both Navy and commercial, and to their supporting industries.

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When coal was the fuel for marine vessels, steam engines by Skinner were first in performance and first in preference. Now that owners are considering a return to available, affordable coal, Skinner know-how is only a phone call away. Ask Dick Whiting how coal power fits in your future.



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Fast Reference Tables For Marine Steel Plates Available From Armco

Marine steel plate data in tabular form is now available from Armco in a new free folder. This useful folder includes information on mechanical properties, thickness availability, chemical composition, and provides a “relative price factor” for comparison purposes. For a copy of the folder,

Write 12 on Reader Service Card

Two Lightships Ordered For Australian Waters

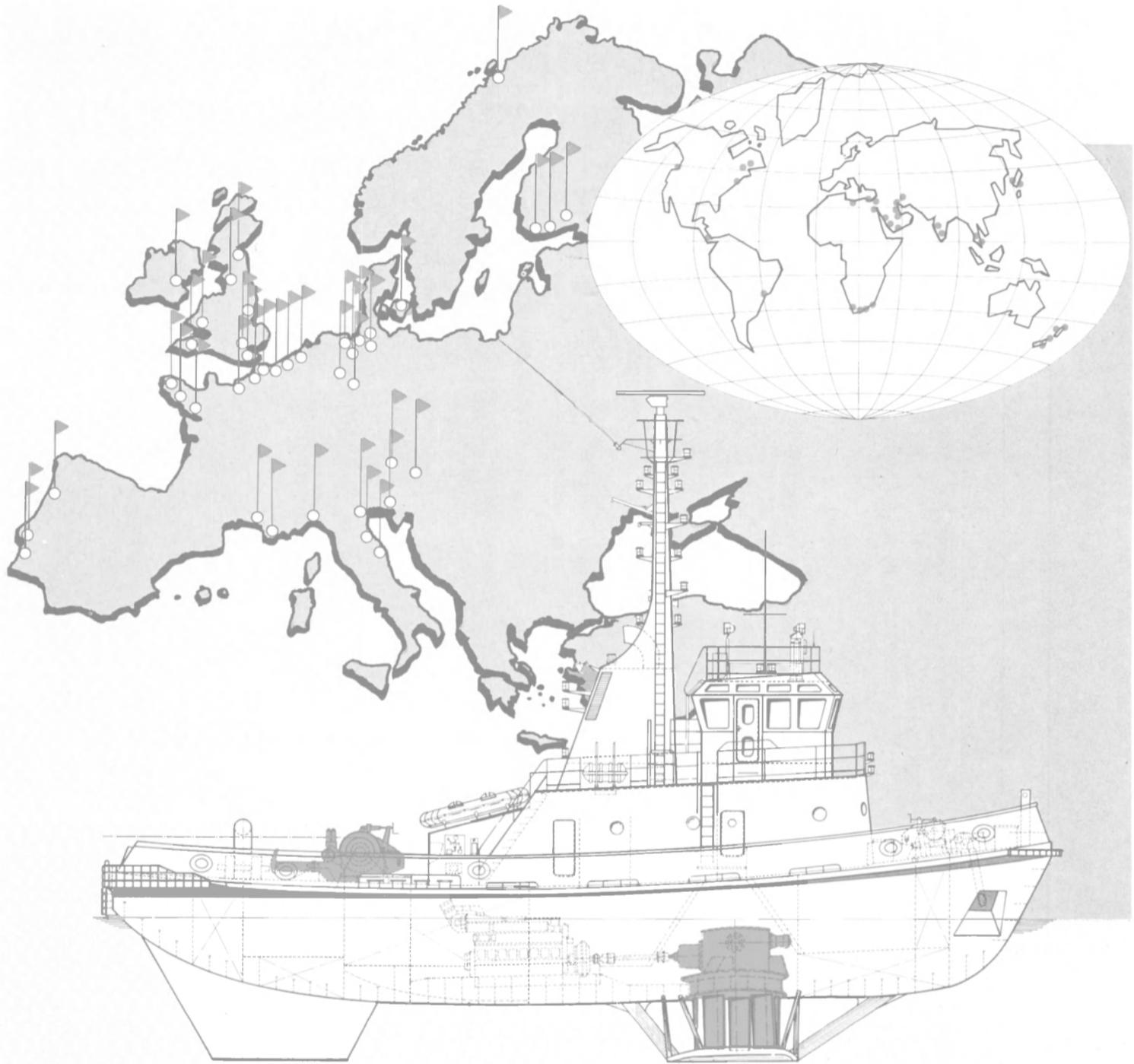
Two 23-meter (about 75-foot) long lightships are to be built at Ocean Shipyards, Fremantle, Western Australia, for the Australian Department of Transport at a cost of 2.4-million Australian dollars.

On completion, scheduled in 1982, one will be stationed at the Carpentaria Shoal, Torres Strait, and the other at Breaksea Spit at the southern end of the Great Barrier Reef. There is an option for a further two vessels for use in the Bass Strait, where a traffic separation scheme is planned.

The vessels will be built to the design of the naval architectural firm of Sir J.H. Biles & Co., Ltd., who were responsible to AGA Navigational Aids, Ltd., Brentford, England, for the lines and specification for two similarly designed vessels for the U.K.'s Trinity House. The Australian vessels will carry the same AGA 17-mile-range acetylene lighting system which will maintain the lightbeam on a horizontal plane, regardless of pitch and roll. They will also be fitted with radar responders to help location and identification by ship-borne radar.

These vessels will have the same service life of two years on station without attention. Differences in design include the addition of a diesel hydraulic windlass for mooring, no bulwarks on the foredeck for easier maintenance, and no recessed boarding ladders amidships. Stainless steel will be extensively used for ladders, rails and fittings. The hull will be painted with a chlorinated rubber system. At 22.72 meters LOA, these vessels will be about a meter longer than the AGA vessels bought by Trinity House.

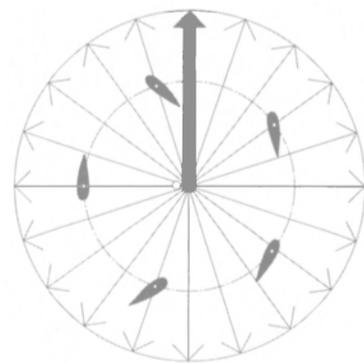
Lighting equipment will be made at Brentford and supplied through AGA Products Australia Pty. Ltd., Melbourne.



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Enough equipment to outfit a fleet was shown as displays in last year's Europort show. Officials of the 1981 exhibit anticipate a new record both in attendees and exhibitors.

EUROPORT '81

Europort '81 — the largest international maritime exhibition and conference—will be 20 years old this month. In terms of products, equipment, and technological presentations, this 20th anniversary show will be as young as tomorrow.

The exhibit will be held in Rai

Halls, Amsterdam, Netherlands, on November 10 through 14, and a record number of shipping and shipbuilding executives as well as technical personnel from all over the globe are expected to attend.

Europort has grown in stature with the years, quickly becoming one of the leading maritime

events. Almost since its inception, Europort has gained a reputation as an event that is welcomed by marine executives for the opportunity it provides to acquire and exchange information on a wide range of industry developments.

The show and technical ses-

sions cover the spectrum of the maritime industry and are not limited to any particular sector.

The Europort '81 conferences, held in conjunction with the exhibition, will for the first time include separate commercial sessions in addition to the well-

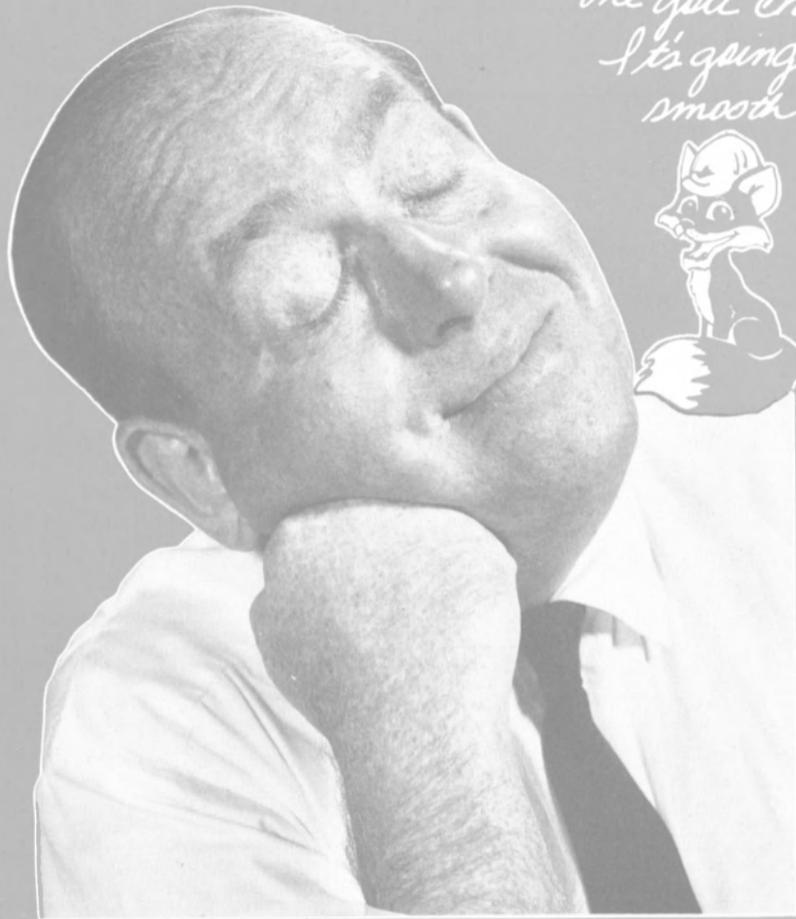
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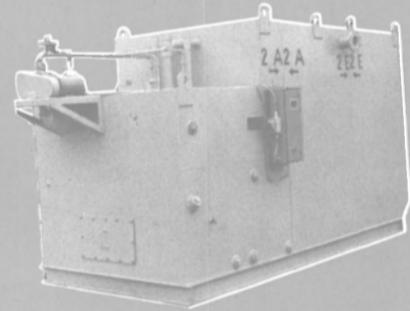
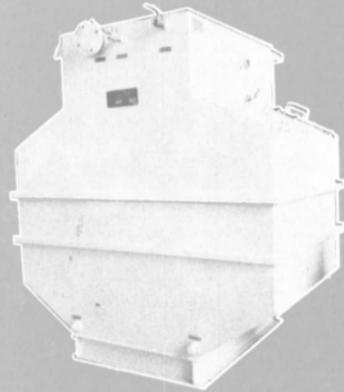
M.A.N. — B&W Benelux B.V. was represented at last year's Europort show and will be one of the 1,500 exhibitors in 1981. M.A.N. will exhibit its Alpha Diesel complete propulsion system 6T23L-KVO (685 kw) with close-coupled gear box and built-on plate coolers.



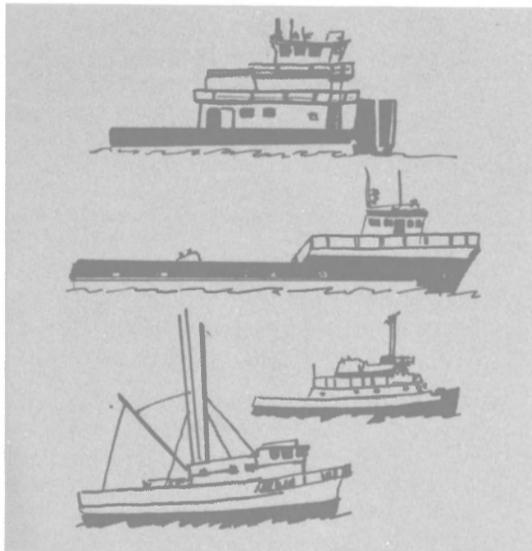
Colorful displays of equipment and supplies will attract and inform visitors to Europort '81 in Amsterdam.



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Europort '81

(continued from page 62)

respected technical presentations. These commercial forums will provide additional opportunities for direct interchange between suppliers of equipment and services, and representatives of their markets.

Maritime-related companies

from more than 19 countries will have exhibits at the show. Represented will be firms from Austria, Belgium, Canada, Denmark, Finland, France, East Germany, West Germany, Hungary, Italy, Japan, the host country — the Netherlands, Poland, Norway, Romania, Spain, Switzerland, United Kingdom, and the United States.

For the second consecutive year, shipping on inland water-

ways will be a special feature. The inland waterways of the European continent are a well-integrated network that is constantly being upgraded. The network is an essential, cost-efficient part of Europe's transportation system. As Europort officials note, inland waterways are assuming greater importance worldwide; it is one sector of the maritime industry

that has enjoyed steady growth during recent years.

A separate conference on inland navigation will be held on Saturday, November 14, and Europort '81 has retained a special part of the exhibit that will, for the second consecutive year, be devoted to the waterways. It will be located in Amstelhal in the Rai center.

The two other conferences planned to coincide with the exhibit have been organized by the conference division of Lloyds of London Press. The programs will be concerned with "Merchant Ships — Construction, Maintenance and Operational Problems," and "Salvage, General Average and Marine Insurance."

The merchant ship conference will be held on the morning of November 10, and in the morning and afternoon of November 11. It is sponsored by the Society of Consulting Marine Engineers and Ship Surveyors.

On November 12 and 13, the marine insurance topic will be sponsored by Ernest Robert Lindley & Sons B.V. Both of

"MERCHANT SHIPS— CONSTRUCTION, MAINTENANCE and OPERATIONAL PROBLEMS" CONFERENCE PROGRAM *

TUESDAY, NOVEMBER 10

Morning—"New buildings, Their Conception / Contract / Construction / Trials and Delivery."

9:00 a.m.—Registration.

9:30 a.m.—Chairman's opening remarks.

9:40 a.m.—Gerald Geddes: General Appraisal of Total Subject.

10:25 a.m.—Coffee

10:55 a.m.—Norman Hart: The Execution of a Building Program by a Consultant.

11:30 a.m.—H.R. Selby: The Development of Specifications in a Building Program by a Consultant.

12:00 noon—M.R. Knight: The Realities of Supervising a Building Program by a Consultant.

12:30 p.m.—Lunch

2:00 p.m.—His Royal Highness Prince Claus of the Netherlands Opens EURO-PORT '81 Exhibition.

WEDNESDAY, NOVEMBER 11

Morning—"Operational Problems."

Chairman: Gerald Geddes.

9:30 a.m.—Chairman's opening remarks.

9:40 a.m.—J.P. Taylor: Sale and Purchase—M.O.A.; A. Clapham: On and Off Hire Surveys.

10:55 a.m.—Andrew Sinclair: Surveys on Behalf of Underwriters by Specialists, Consultants and Classification.

11:40 a.m.—J.A. Duncan: Maintenance And Repairs; G. Lugg: General Advice to Average Adjusters.

12:30 p.m.—Lunch.

Afternoon — "Techno/Legal/Arbitration/Expert Witness."

Chairman: Andrew Sinclair.

2:00 p.m.—Chairman's opening remarks.

2:10 p.m.—Cedric Barclay: Arbitration Generally.

2:55 p.m.—Tea.

3:25 p.m.—Harry Miller: Expert Witnesses.

4:10 p.m.—Forum—Chairman: Cedric Barclay.

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But, after all of that, do you know what we believe convinced the Navy to award ENERGY AUDIT CORPORATION the contract for the infrared inspection of the fleet: the quality of the EAC infrared report.

If you're going to ISOSO '81, visit us at Booth #130 and we'll show you a sample report.

If you'd like further information, call or write our Marine Inspection Division.



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A range of items from ship models to super machinery will be on display at Europort '81 as this exhibit from the previous exhibition can attest.

these conference programs will be conducted in English.

Europort '81 officials anticipate a total attendance of more than 70,000 persons at the five-day event. His Royal Highness Prince Claus of the Netherlands will officiate at the exhibition's opening ceremony.

"SALVAGE, GENERAL AVERAGE and MARINE INSURANCE" CONFERENCE PROGRAM *

THURSDAY, NOVEMBER 12

Morning—Chairman: Geoffrey Hudson, partner, Ernest Robert Lindley and Sons.
8:45 a.m.—Registration.

9:15 a.m.—Chairman's opening remarks.

9:30 a.m.—John Van Beuningen, managing director, Smit International Towing and Salvage Co. Keynote Address: "Is the Pen Mightier Than the Towrope?"

10:15 a.m.—Robert Elborne, partner, Elborne Mitchell: The C.M.I. Draft Salvage Convention—What it Proposes.

11:00 a.m.—Coffee.

11:30 a.m.—Miss Ina Wilderboer, partner, Van Doorne and Sjollem: The C.M.I. Draft Salvage Convention—What it Omits.

12:15 p.m.—Terence Coghlin, partner, Thos. R. Miller and Son (Bermuda): The Attitude of P. and I. Clubs to Present and Future Changes.

1:00 p.m.—Lunch.

Afternoon—Chairman: Tony Wilbraham, president of the International Salvage Union.

2:30 p.m.—Gerald Darling, Q.C.: Lloyd's Form of Salvage Agreement — Past, Present, and Future.

3:15 p.m.—Geoffrey Hudson, partner, Ernest Robert Lindley and Sons: Application to General Average—The Adjusters Headache.

4:00 p.m.—Tea.

4:30 p.m.—Speaker to be Announced. Hull and Cargo Insurers Exposure.

5:15 p.m.—Chairman's closing remarks.

FRIDAY, NOVEMBER 13

Morning—Commencing at 9:30 a.m., "New Policy Forms—Off the Peg or Tailor Made?" M.J. Shah, Chief, Maritime Legislation Section, Shipping Division; UNCTAD: The UNCTAD Proposals.

Speaker to be announced: Developments in the Traditional Markets.

1:00 p.m.—Lunch.

Afternoon—Commencing at 2:30 p.m., simultaneous discussion groups:

Group 1—"The Provision of Security for Salvage, General Average, Collision and Pollution Liabilities";

Group 2—"New Policy Forms—Towards a Fully Integrated Insurance Cover."

Followed by reports from each group and discussion.

(*As available at Press Time.)

EUROPORT '81 EXHIBITORS

A = Amstel Hall*
D = Doorgangshal
E = Europe Hall
N = North Hall
O = East Hall
V = Verbindingshal
W = West Hall
Z = South Hall

(*Inland Shipping exhibitors in this hall)

Company	Stand No.
ABE C.V.	E-357
A.C.B.	(NA)
Adpoint Advertising Marketing B.V.	O-755
Agam Motoren Rotterdam B.V.	O-711
Ahlemann & Schlatter	(NA)
Alfa Laval N.V.	E-346
Alinco Electrotechniek ..	A-686
Uitgeverij De Alk B.V. ..	Z-135

Allweiler Marine B.V.	O-719
Alsthom Atlantique	E-403
Amec B.V.	A-646
Amerglass B.V.	A-697
Ameron B.V.	N-804
Vereniging "De Amsterdamse Haven"	E-330
A.M.W., B.V.	V-509
Anchor Marine	(NA)
Antar-Snea	(NA)
Antwerpse Lloyd N.V. ..	A-612

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The U.S. Coast Guard, United Kingdom and Norway agree.



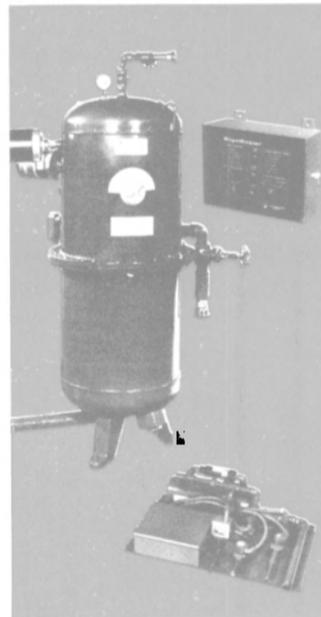
This bilge pollution control system will do the job in any waters on earth.

U.S.C.G. Approval Numbers
162.050/1010/0, /1011/0,
/1012/0

U.S. Pat. Nos. 4,018,583 and 4,111,806
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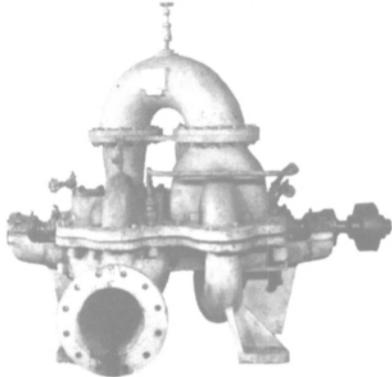
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T-2 TANKER EQUIPMENT AVAILABILITY

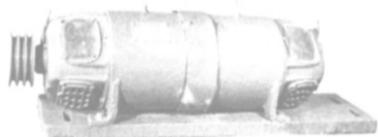
From Immediately To 5 Days

INGERSOLL-RAND 6-GT CARGO PUMP



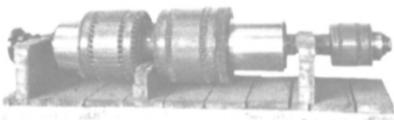
2000 GPM — 100 PSIG — Westinghouse or G.E. pump motors — 200 HP — 440/3/60

G.E. NEW STYLE AMPLIDYNE



5LY148A — Type AM — Frame 605. Rebuilt with ABS. Immediate delivery.

D.C. EXCITER ARMATURE



110 KW — 32.5 KW — 5.5 KW — for Westinghouse 538 KW auxiliary generator. In stock for immediate delivery. Reconditioned — with ABS.

G.E. 75/55 KW ARMATURE



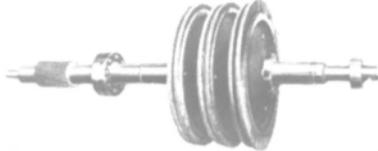
FOR 525 KW TURBO GENERATOR SETS

In stock for immediate delivery. Reconditioned — with ABS.

538 KW WESTINGHOUSE TURBINE SPINDLE

For immediate delivery. Reconditioned with ABS.

G.E. 525 KW TYPE DORV 325 M AUXILIARY TURBINE ROTOR



In stock — for immediate delivery. A.B.S.

NEW WESTINGHOUSE STATIONARY BLADING

From Ex-Gulf Oil Spare Parts Stock

- 1 Box 2nd Stage Diaphragms — Curtis
- 1 Box 2nd Stage Diaphragms — Rateau

1 WESTINGHOUSE MAIN GENERATOR FORWARD PEDESTAL BEARING SEAL

From Ex-Gulf Oil Spare Parts Stock

INGERSOLL-RAND 24VCM BRONZE MAIN CIRCULATING PUMP



Reconditioned by USMP 1975 — with ABS — Immediate delivery. New Micarta and bronze inserts — new stainless steel shaft, rings, upper & lower bearings, bushings, casing and cover. Dynamically balanced. From Ex-Gulf Oil. Immediate delivery.

WESTINGHOUSE 7240 HP MAIN PROPULSION TURBINE

Unshrouded — 17th to 18th rows replaced by Westinghouse. With ABS. Immediate delivery.

WESTINGHOUSE 50 HP FORCED DRAFT FAN MOTORS

Ready for shipping in 5 days

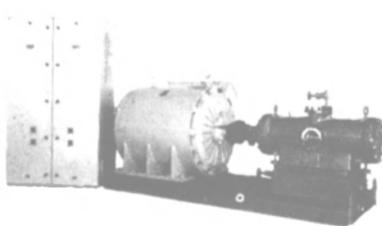
NEW INGERSOLL-RAND 3G FIRE & BUTTERWORTH PUMP

Pump only. Ready for delivery.

NEW G.E. MAIN TURBINE ROTOR

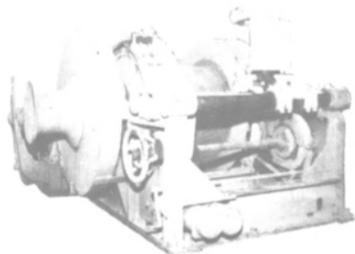
700 G.P.M. @ 150 P.S.I.
NEW — UNUSED — EX-U.S.N.

MOTOR DRIVEN ROTARY HORIZONTAL PUMPS WITH 4-SPEED 440/3/60 MOTOR



Inlet 8" — outlet 6". Powered by 4-Speed 440/3/60 motor. Motor is 100 75/50/37.5 HP — 1200/900/600/450 R.P.M. Motor has Cutler-Hammer control. Weight 10,000. Inquire for complete details.

100,000 LB. ALMON JOHNSON Constant Tension Mooring Winches

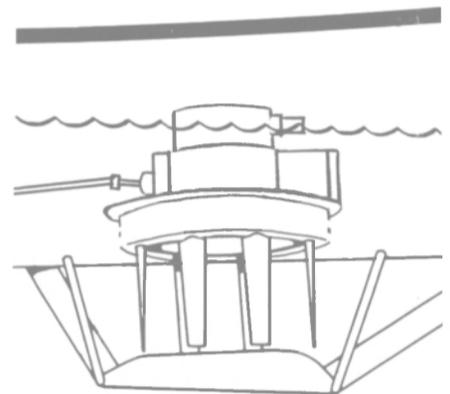


In very good condition. Series 232 mooring & anchoring winches. Automatic self-tensioning. Wide range from 100,000 lb. line pull @ 10 FPM to 26,000 lbs. @ 400 FPM. Gypsy line pull @ 12,000 lbs. @ 25 FPM. Drum declutchable through spiral jaw clutch for free spooling. Driven by 50 HP 230 VDC motors — Westinghouse CK — 575 RPM — 1/2 hour — 75°C rise — stab shunt — 181 amps. Max. RPM 1900 — Cutler-Hammer brake — 18" — type NM. Complete with magnetic control panel, resistor banks & remote control pedestal and mounted master switch.

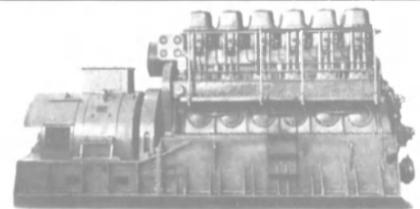
TWO 1, VOITH--S

CYCLOIDAL CC OMNI-DIRECTIO

Can Be Located Side
For Fast and Precise Mo
On Axis Turns Make Them Id



Serial Nos. NR-1783 and NR-1784. Unit size 24 blade length—2400mm blade orbit diameter. PF heavy duty motor 800/1000 HP—440/3/60—17 Mfg. by Electric Machinery Co. Complete with volts 120 A.C.—line volts 450—amps 941/3/60 HYDRAULIC COUPLING ARRANGEMENT. UNIT MOTORS FOR BRIDGE CONTROL.



BALDWIN 250 KW DIESEL GENERATOR SET

ENGINE: Model VO — 450 HP at 400 RPM — 6 cylinder — 12 3/4" X 15 1/2" — 4-cycle — heat exchanger cooled — air starting. GENERATOR: 250 KW — Westinghouse — 120/240 volts DC.

MARINE SHIPBOARD AIR COMPRESSOR V-TYPE — TS-22820



160 CFM @ 125 lbs — 2-stage 870 RPM — 8 X 8 1/4 X 8 3/4 — air cooled — with intercooler. Direct-connected air compressor #2261021. MOTOR: 50 HP 440/3/60 — mfg by U.S. Motor. AIR COMPRESSOR: Mfg by Air Pumps Ltd. Excellent condition — formerly used on AT&T Vessel "Long Lines" and removed only because they needed a larger unit. Complete with inter- and after cooler. Very good condition.



THE BOSTON

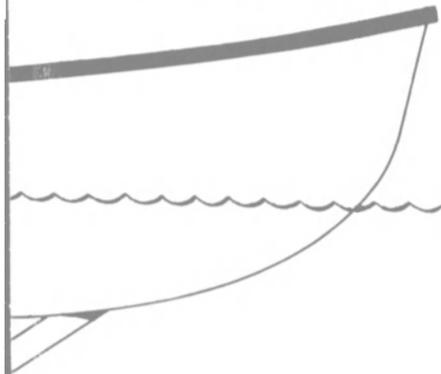
313 E. BALTIMORE

Main Office: (301)
CABLE: BOSIRON—BALTIMORE

1000 H.P. SCHNEIDER

CONTRA-ROTATING AXIAL PROPELLERS

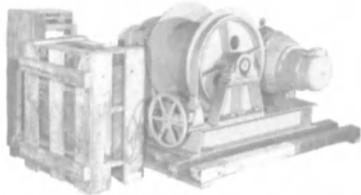
By-Side, Fore and Aft,
Mount Sideways and 360°
Rotational for Tugs, Ferries, Cranes, Etc.



Model E150. 6 Stainless steel blades each unit—1500mm
SHAFT DRIVE with Voith AD40 reduction gears and
55 RPM—squirrel cage—884 amps—frame 23153.
Cage Controls" & motor controls. Size 8—Control
OR DRIVE DIRECTLY WITH DIESEL ENGINE AND
BUILT 1970. COMPLETE WITH HYDRAULIC SERVO

GENERAL PURPOSE WINCH 3500 LBS AT 200 FPM

NEW
UNUSED

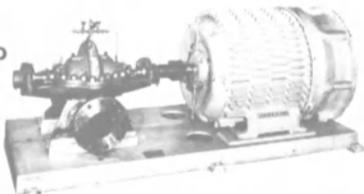


EX
U.S.N.

A.C. Motor drive—25/12.5 HP—GE 440/3/60—40°C AB
—1750 RPM—type KR—full load amps 32. Motor drives
winch through Falk reduction gear. Has compressor
hand brake.

NEW 5" ALL BRONZE BALDWIN-LIMA 1000 GPM 150 PSI TOTAL HEAD CENTRIFUGAL FIRE PUMP

NEW
UNUSED

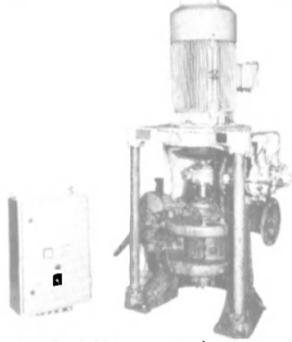


EX
U.S.N.

Single stage double suction type with 6" side suction
& 5" side discharge. 3600 RPM—test pressure 250 PSIG.
MOTOR: Reliance 125 HP 440/3/60—totally enclosed—
fan cooled—Frame D-5003-S—50°C.

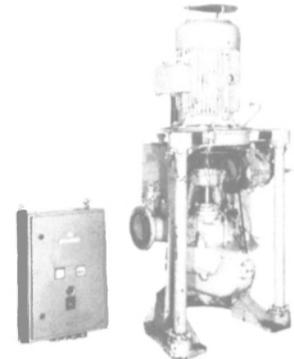
PUMPS

SELF-PRIMING FIRE & GENERAL SERVICE PUMP Complete With Vacuum Pump



Type 150 V.C.B.-A.N.V. — Built 1976. 6" x 6" — 397
GPM @ 230' head — 100 PSI — 1750 RPM — 792
GPM @ 115' head — 50 PSI — 1750 RPM or M³/hr —
90/180 @ 70M/35M head. MOTOR: 33 KW—440 volts
3-phase 60Hz — 1800 RPM. Teikoku Machinery Works,
Osaka, Japan. Condition very good. Lloyds or ABS.

SELF-PRIMING EMERGENCY FIRE PUMP



4" x 4" — 220 GPM @ 231' head (100 PSI) 1750 RPM
(50M³/hr. @ 70M total head). Complete with vacuum
pump. MOTOR: 25KW — 1800 RPM — 440/3/60Hz.
Type 125-2VCS-A-NV. Teikoku Machinery Works, Osaka,
Japan.

SEND FOR PLANS. BOTH OF THESE PUMPS REMOVED FROM
VERY NEW HANSA VESSEL "RABENFELS"

FIRE PUMPS

MADE BY K.S.B. GERMANY — (RADIAL FLOW)

265 GPM



4" x 4" — 265 GPM — 220' head (60
M³ @ 70m) — 3520 RPM. MOTOR:
24KW — 440/3/60Hz.

396 GPM



396 GPM @ 230' head (90M³ @
70m) — 3550 RPM. MOTOR: 26KW
— 440/3/60Hz.

1500 GPM GARDNER-DENVER BALLAST & CIRCULATING PUMPS



8" Suction — 6" discharge. MOTOR:
30HP — 440/3/60/1750 RPM. Ex
U.S.N. LSM vessels.

ROSS COOLERS



MODEL 1460

Ross Cooler Model 1460 — Type BCP — 160 sq. ft. —
contains 196 3/8" tubes #18BWG Cupro Nickel tubes
— copper shell — Cupro Nickel heads & tube sheets.
Tubes 5' 0-1/8" long — single pass. 3" Lube oil inlet &
outlet — 5" seawater inlet & outlet. Formerly working
with LST GM 1000/1200 HP engine.



MODEL 848

48" Tube length — 3/8" tubes — Cupro Nickel — 49 mils
thick — 60 tubes — 39.2 sq. ft. — for LST reduction
gears. 8" Diameter copper shell — 1-1/2" Seawater inlet
and outlet — single pass. 1-1/2" Oil inlet & outlet —
125# ASA. Overall length 5' 0-1/4" — distance between
centers of oil inlet & outlet 3' 4-3/8".

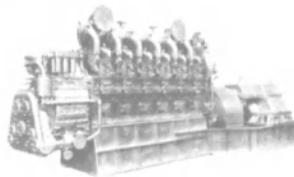
UNUSED ALCO MARINE CONDENSER



700 Sq. ft. — 2-pass — 3/8" CuNi tubes 0.049 (18BWG)
— 108" effective length — 476 tubes — shell & head
hydro test 30 PSI. Empty weight 6350 lbs. — 11,000
lbs. filled with water — operating 7550 lbs. — 2-Pass
9-3/8" inlet & outlet — length of condenser 156" — about
78" from exhaust flange to bottom of hot well.

MATCHED PAIR

1200 HP — GM MODEL 12-278A
@ 744 RPM—WITH FALK REDUCTION GEAR



Vee type 8-3/4 X 10-1/2 — 2.5:1 Falk reverse & reduction
gear. Port and starboard engines — mounted on pre-
fab sub-base as shown.

WORTHINGTON 16" X 14" X 18" VERTICAL DUPLEX STRIPPING PUMP



1400 GPM @ 110 PSI — suction
lift 11.5 ft. — steam back pres-
sure 15 lbs. 14" Suction—10"
discharge — 2-1/2" steam — 4"
exhaust. Overall width 6'8" —
overall height 9'1-1/2" — depth
3'9-1/2". Wt. approx. 10,000 lbs.

RECONDITIONED 1980
ABS — READY TO GO

ON METALS CO.

RE ST. • BALTIMORE, MD. 21202

539-1900 Marine Dept.: (301) 752-1077

RE, MD. U.S.A.

TWX 710-234-1637

Europort '81

—Exhibitors

(continued from page 65)

Ape-Allen Limited	Z-107
Aquamaster Benelux B.V.	E-356
Arca-Regler GmbH	(NA)
Aros-Hydrauliek B.V.	Z-136
Avd Advies-En Verkoopbureau Voor Drijfwerkonderdelen B.V.	O-743

Amsterdam Boat Equipment	A-681
Technisch Bureau Andriessen B.V.	O-761
Atlas A S	(NA)
Baan Hofman Diesels B.V.	E-374
Badotherm B.V.	Z-102
Bagema B.V.	A-664
Electro Industrie S. Bakker	Z-110
B.V. Rubberfabriek Bakker	Z-115

Becker Telecommunicatie Ind. B.V.	Z-109
Technische Maatschapij Bergmann B.V.	E-339
Berman Techniek	A-639
Bloksma B.V.	E-316
Uitgeverij C. De Boer Jr.	E-323
AB Bofors Nederland	E-408
Boll & Kirch Ned. B.V. ..	Z-113
Bolnes Motorenfabriek B.V.	A-695

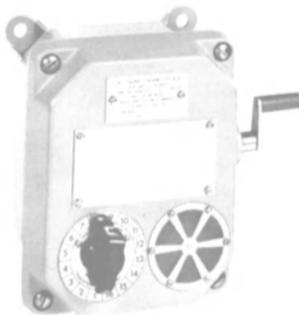
Techn. Handels & Adviesbureau Boone B.V.	E-344
Henri Brands B.V.	E-414
Ed. Breitenbach GmbH ..	N-807
Bridgestone Tire Co. Ltd.	Z-122
Brinkmann & Niemeijer N.V.	A-630
British Hovercraft Corp. Ltd.	N-823
British Hovercraft Ltd. ..	(NA)
British Marine Equipment Council Ltd.	O-745-1
British Overseas Trade Board	(NA)
H.W. Van Broekhuizen ..	A-679
Bruinhof B.V.	E-392
Brusselle Marine	E-303
Lucas Bryce Ltd.	E-390
Fa. Buderus	A-668
Burmah Castrol Nederland B.V.	A-663
Boomse Metaalwerken ..	N-806
B & W Alpha Diesel A/S	(NA)
Camrex Limited	O-765
Canadian Embassy	A-661
Canadian Shipbuilders & Engineering Ltd.	A-662
Caterpillar Overseas S.A.	E-365
B.V. Ceelen	V-507
Clayton Of Belgium N.V.	O-715
C.M.R.	(NA)
Ivg Colbachini SpA	E-404
Comite Francais Des Manifestations Economiques A L'Etranger	(NA)
Compri-Aluminum B.V. ..	A-626
Conrad Stork B.V.	Z-134
Conver Ingenieur Technik GmbH	(NA)
Coubro & Scrutton Ltd. ..	(NA)
Crepelle & Co.	(NA)
Croon & Co. B.V.	E-319
Cummins Diesel Sales & Service BV	E-380
Centromor	E-384.1
Dabekausen Sanitair	A-633
Daf Diesel	E-317
Damen Shipyards B.V. ..	E-355
Danish Export Group	E-304
Association	t/m-313
Datema Delfzijl B.V.	Z-106
Debeg GmbH	(NA)
Haven Van Delfzijl	Z-128
Delta-Phot	Z-131
Diesel & Gas Turbine Worldwide	E-412-3
Scheepswerf "De Donge"	E-338
Van Duyvendijk & Van Overbeek BV	E-358
DWE Deggendorfer Werft Und Eisenbau GmbH ..	A-688
Van Dijk Scheepsuitrustingen BV	E-385
Danfoss A/S	(NA)
Daempa A/S	(NA)
Economisch Dagblad	A-602
Elceestaal B.V.	A-670
Elna Elektro-Navigation- und Industrie GmbH ..	(NA)
Econosto N.V.	E-337
Emha Techn. Bureau B.V.	A-603
Galvanisch Bedrijf Emmelot	O-720
Enraf-Monius	A-606
Erato B.V.	E-326
Esco Aandrijvingen R.V.	A-672

(continued on page 76)

Hose-McCann Telephone Co., Inc., originators and pioneers of Sound Powered telephones for marine use, has expanded their product line to include a wide variety of U.S. Navy Electrical and Mechanical products. An assortment of these products are shown here. All Hose-McCann Navy Products are manufactured, tested, and qualified in accordance with the latest Military specifications.

Please call or write for further information and specifications on these or any other Navy Products.

CALL SIGNAL
STATION IC/D
Symbol No. 2988



SOUND-POWERED
TELEPHONE
JACK BOX
G15A/B/C

SOUND-POWERED
TELEPHONE
HANDSET
H203/U



SOUND-POWERED
HEAD-CHEST
H200/U
H202/U



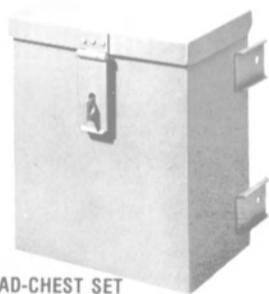
HANDSET HOLDER
Z33A/B



SOUND-POWERED
TELEPHONE PLUG
H39A



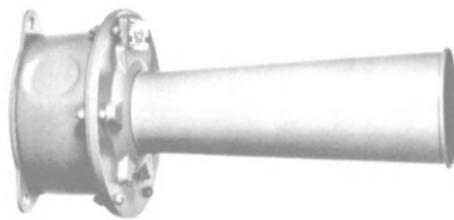
SOUND-POWERED
TELEPHONE JACK
H27A



HEAD-CHEST SET
STOWAGE BOX
Symbol No. 2924.1
(1 to 6 Compartments)



ALARM BELLS
& BUZZERS
IC/B2S4
(Other types available)



HORNS & SIRENS
IC/H1S4
(Other types available)

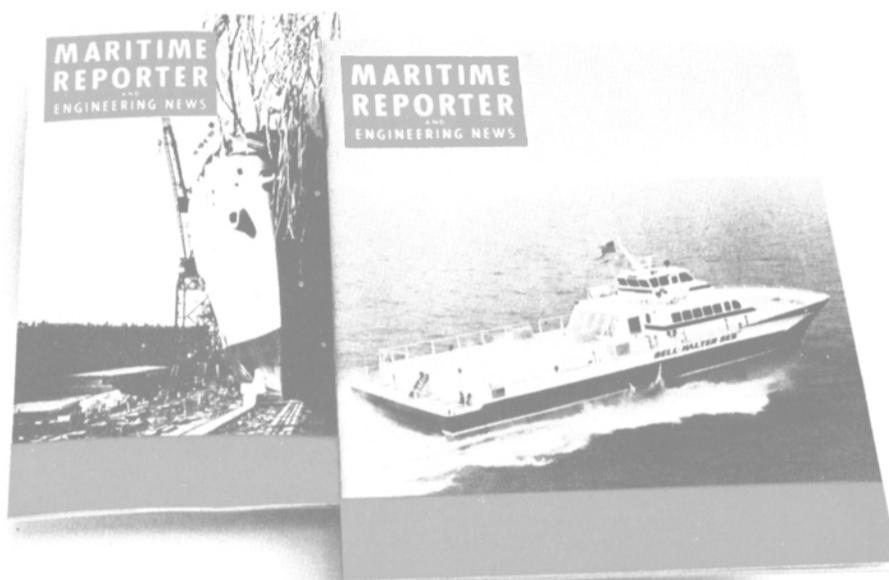


HOSE-McCANN TELEPHONE CO., INC.

9 SMITH STREET ■ ENGLEWOOD ■ NEW JERSEY 07631
PHONE 201-567-2030 ■ CABLE ADDRESS: HOSETELCO ■ TELEX NO. 642837

ORIGINATORS AND PIONEERS OF SOUND POWERED TELEPHONES FOR MARINE USE

THE WORLD'S MOST WANTED MARINE MAGAZINE



FOR MAXIMUM ADVERTISING RESULTS IN 1982

TOTAL CIRCULATION...100% REQUESTED...IN WRITING BY EACH INDIVIDUAL READER

COMPARE BUYING INFLUENCE READERS FOR YOUR 1982 ADVERTISING



ONLY MARITIME DELIVERS YOUR TO THOUSANDS MOR

ONLY MR GIVES YOUR ADVERTISING THE SALES-BUILDING POWER

Sales managers agree...buying influence readers are the management, engineering and purchasing personnel...shoreside...in vessel operations, shipbuilding and naval architecture.
Non-buyers are men aboard ship, shipyard laborers, manufacturers, students, advertisers, attorneys, etc.

IMPORTANT After several years of a steady decline in buying influence circulation, ME/Log has changed the way they list their readers in the June 1981 circulation statement. Both buyers and non-buyers are now combined in several single groups with single totals. Because the number of buyers in these groups is now unknown, it is impossible to accurately determine ME/Log's buying influence circulation.

MARINE ENGINEERING/LOG TOTAL WORLD WIDE IDENTIFIABLE BUYING POWER

(Non-buyers Removed)

	TOTAL IDENTIFIABLE BUYERS
SHIPBUILDING & REPAIR: SHIPS, BOATS, DRILL RIGS (Commercial, Government, Military): Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers, Works Managers, Managers, Naval Architects, Marine Engineers & Purchasing Agents	3720
SHIP, BOAT & BARGE OWNERS, OPERATORS, PORT AUTHORITIES, AGENTS & BROKERS (Commercial, Government & Military) Presidents, Vice-Presidents, Secretaries, Treasurers, General Managers Naval Architects, Marine Engineers & Purchasing Agents	5924
Marine Superintendants, Port Captains, Port Engineers, Masters, Mates, Pilots, Engine Room Chiefs & Licensed Assistants	?
INDEPENDENT PROFESSIONALS: Naval Architects, Marine Engineers, Surveyors, Consultants, Divers & Salvors	?
TOTAL IDENTIFIABLE BUYERS	9644

NON-BUYERS (IN RED) ARE COMBINED WITH BUYERS — IMPOSSIBLE TO DETERMINE NUMBER OF BUYERS IN THESE GROUPS.
e.g., DIVERS AND SALVORS DO NOT DESIGN VESSELS.

**ME/L
43.5% IDENTIFIABLE BUYERS**

IDENTIFIABLE BUYERS	9,644
BALANCE	12,542
TOTAL CIRCULATION	22,186

IDENTIFIABLE BUYERS

ME/L 3173 SUBSCRIPTIONS
6471 FREE COPIES
TOTAL 9644

FREE COPIES TO DIRECTORY NAMES—

No. 2 mails thousands of free copies, every issue, to names taken from directories of people who have not requested the magazine.



FOR MORE MARINE SALES IN '82

REPORTER ADVERTISING E MARINE BUYERS



OF THE WORLD'S LARGEST CIRCULATION TO IDENTIFIABLE BUYERS.

Buyers must be separated from non-buyers to determine the advertising value of any magazine. This comparison shows the total circulation of both magazines to all **IDENTIFIABLE BUYERS** throughout the entire world... in all market areas... deep draft, inland waterways, coastal and offshore oil drilling. Copies to non-buyers have been removed.

MARITIME REPORTER/ Engineering News TOTAL WORLD WIDE BUYING POWER

(Non-buyers Removed)

SHIPBUILDING, BOATBUILDING, DRILL RIG BUILDING & REPAIR COMPANIES:

(Commercial, U.S. Navy and U.S. Coast Guard) Companies, directors, owners, presidents, vice presidents, secretaries, treasurers, superintendents, managers and purchasing agents, naval architects, engineers and chief draftsman

**BUYING
POWER
READERS**

5,595

VESSEL OPERATING COMPANIES, OCEAN, INLAND, HARBORS, OFFSHORE OIL DRILLING, PORT AUTHORITIES: (Includes oil companies involved in offshore drilling, offshore drilling contractors and crew/supply boat companies).

(Owners, Agencies and brokers) Companies, directors, owners, agents, presidents, vice-presidents, managers, secretaries and treasurers, port engineers, superintendents, purchasing agents, port captains, port stewards, naval architects and engineers shoreside

10,034

PROFESSIONAL MEN:

Naval architects, engineers and consultants shoreside

2,704

BUYING POWER TOTAL 18,333

TOTAL BUYERS

**MR
18,333**

100%
REQUESTED
IN WRITING
BY INDIVIDUAL
READERS

TOTAL
18,333

**WORLD'S MOST WANTED MARINE MAGAZINE
100% REQUESTED...IN WRITING**

The quality of Maritime Reporter's circulation is unequalled, 100% currently requested, personally, in writing, by each individual reader.

MARITIME REPORTER 89% IDENTIFIABLE BUYERS

IDENTIFIABLE BUYERS	18,333
BALANCE	2,240
TOTAL CIRCULATION	20,573

ADVERTISE TO THOUSANDS MORE BUYERS IN ...

**MARITIME
REPORTER
AND
ENGINEERING NEWS**

NOW...COMPARE CIRCULATION TO BUYERS OF ALL 4 MAGAZINES

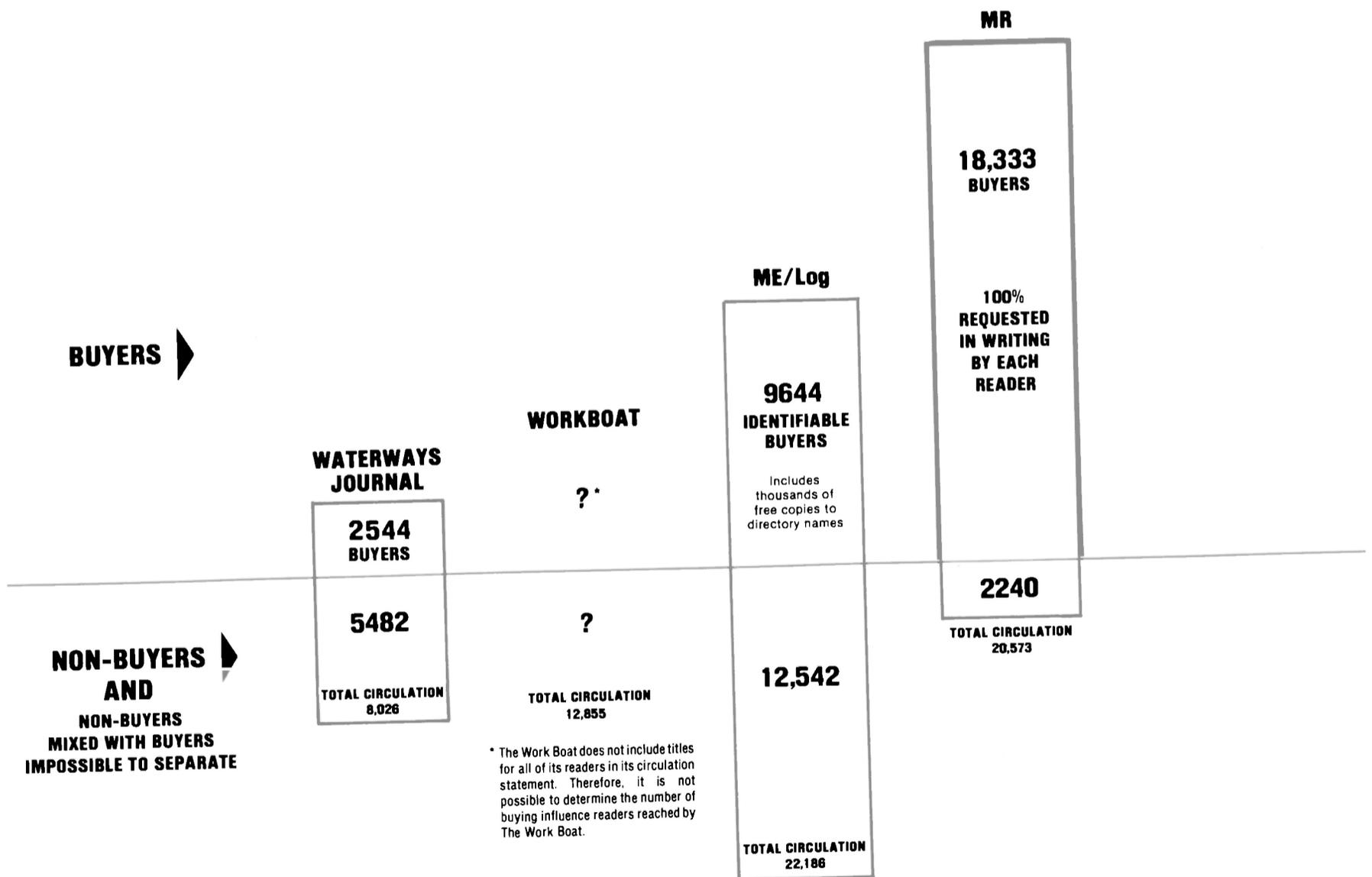


MARITIME REPORTER

THE WORLD'S MOST WANTED

...BY THOUSAND MORE BUYING INFLUENCE READERS

COMPARE BUYING INFLUENCE READERS

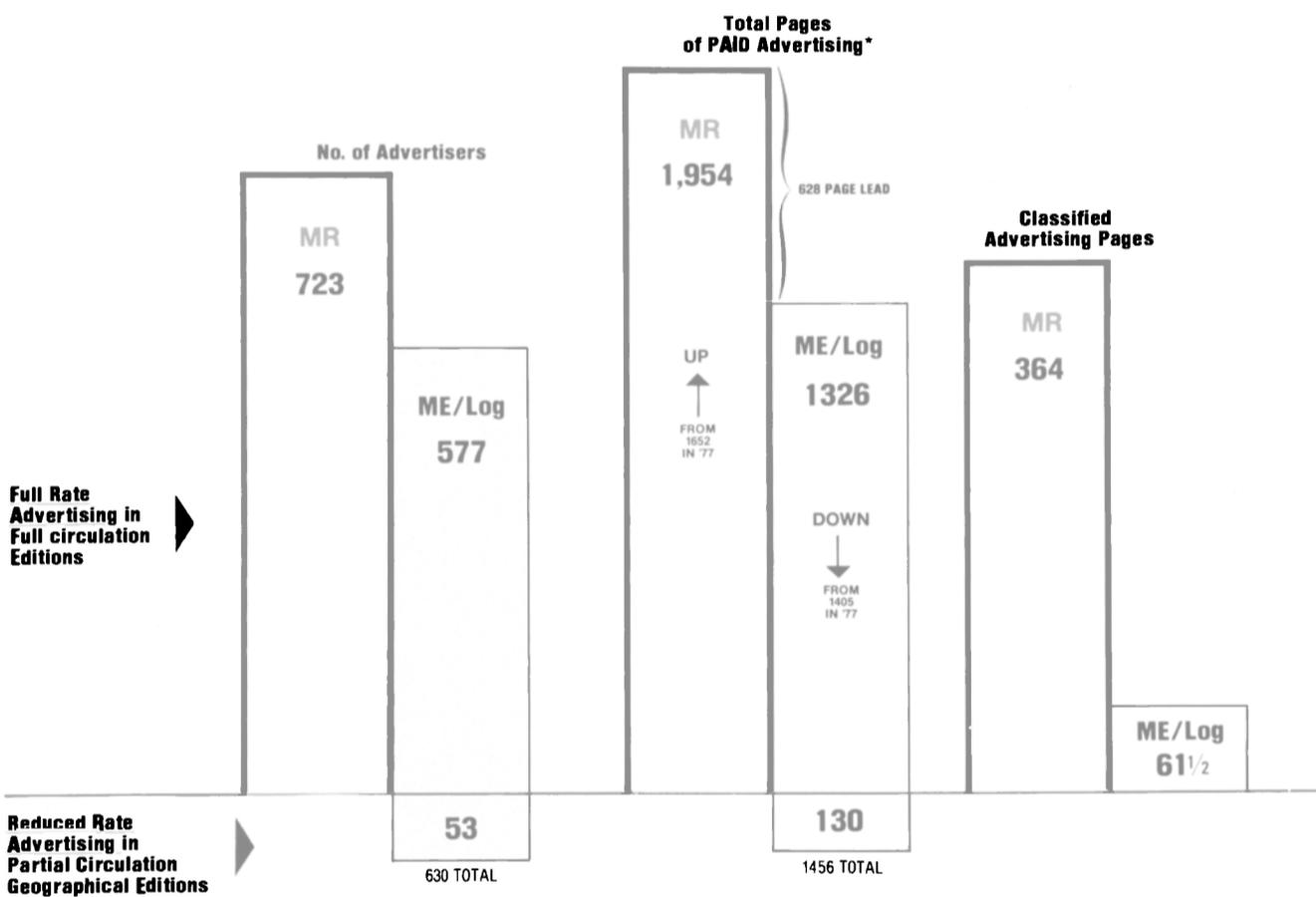


THE WORLD'S LARGEST CIRCULATION TO BUYERS

MARINE MAGAZINE

...BY THE WORLD'S LEADING MARINE ADVERTISERS

COMPARE 1980 ADVERTISING LEADERSHIP



*MARITIME REPORTER/Engineering News carried a total of over 1,200 oversize 9" x 12" pages of paid advertising in 1980, all full run at full rates. These are reported above in standard 7"x10" page equivalents (1954) for comparison with standard 7"x10" pages of ME/L. Universally accepted method for reporting oversize ad pages in leading national industrial marketing/advertising magazine.

**ONLY
MARITIME REPORTER
GIVES YOUR ADVERTISING
THESE POWERFUL
SALES BUILDING ADVANTAGES!**

- **WORLD'S LARGEST** circulation to buying influence readers
- **LARGEST US** circulation to buyers
- **LARGEST INLAND/OFFSHORE** (Shallow draft) circulation to buyers
- **100% REQUESTED CIRCULATION**...in writing...by each individual reader
- **MOST CURRENT CIRCULATION**...MR's total circulation is 100% qualified. Largest percentage of currently (less than 1 yr.) qualified circulation in the industry.
- **CIRCULATION TO PEOPLE** Total Circulation Address Analysis...99.1% addressed to individual people...by name and title.
- **CURRENT EDITORIAL**...TWICE each month...MR publishes latest info **FIRST**
- **BEST READ** because it is CURRENT...weeks ahead of slower monthlies
- **UNEQUALLED PASS-ALONG READERSHIP**...5 readers per single copy...over 200,000 monthly readership
- **FREE READER SERVICE CARD**
- **EXCLUSIVE FREE LISTING** for regular advertisers in Buyers Directory section of all 24 issues for one entire year.
- **DIRECT MAIL SERVICE**
- **DIRECT RESPONSE CARD MAILINGS**

**MARITIME
REPORTER**
AND
ENGINEERING NEWS

MARITIME REPORTER /Engineering News
107 East 31 Street New York, N.Y. 10016
(212) 689-3266

FOR THE BEST ADVERTISING RESULTS

COAL RETURNS TO

G-E designed boilers will power the first six coal-fired steamships ordered in two decades. Naturally.

Combustion Engineering has long been a world leader in both marine boilers and coal-firing technology. So it's only natural that C-E boilers were selected to power the first six coal-fired steamships ordered in 20 years.

C-E designed coal-fired boilers will be aboard two 75,750 DWT bulk carriers to be built by Italcantieri, SpA for Bulkships Limited of Australia. Boilers of our design will also be on a pair of 74,700 DWT bulk carriers under construction by Mitsubishi Heavy Industries, Ltd., Japan, for The Australian National Lines. As well as on two 154,400 DWT bulk carriers to be *converted* by E. N. Bazan of Madrid for E. N. Elcano of Spain.

C-E modified a proven marine boiler design to permit coal-firing via

spreader stoker. But we retained the conservative furnace rating, superheater design with vertical arrangement and wide tube spacing, and in-line main bank tubes that have been the hallmark of our oil-fired boilers.

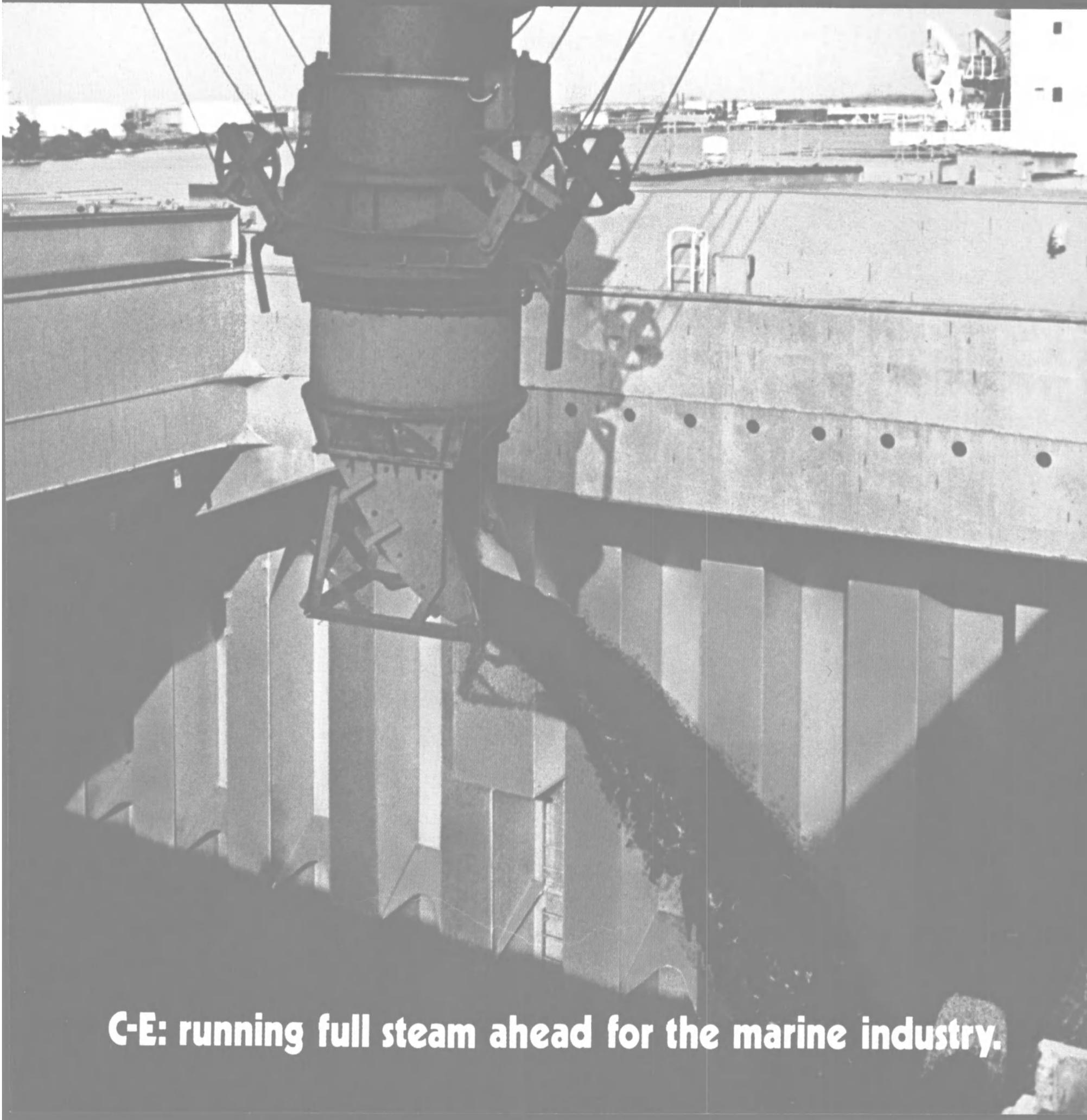
Many countries, eager to lessen their dependence on oil, are planning new coal-fired electric generating stations. C-E is ready with the technology and know-how needed to build new marine boilers for coal-fired steamships that will provide economical coal transport for these new stations.

For more about C-E marine boilers that are powering the new breed of coal-fired steamships, contact C-E Marine Power Systems, Combustion Engineering, Inc., Windsor, CT, U. S. A. 06095.

**CE POWER
SYSTEMS**
COMBUSTION ENGINEERING, INC

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THE HIGH SEAS.



C-E: running full steam ahead for the marine industry.

Europort '81

—Exhibitors

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Europort Organisation Inc.	(NA)
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Tech. Handelsmij. P.J. Peteris	Z-129
The Finnish Foreign Trade	O-702

Association	t/m O-709
Frehenco	W-203
Frijdal-Techniek B.V.	O-767
Gebhard Electro B.V.	E-351
Geha K.M.T. B.V.	A-693
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Gesellschaft Fur Wirtschafts-Forderung In Nordrhein-Westfalen GmbH	(NA)
Geveke Motoren & Grondverzet	E-366
Giesselbach Electro Engineering	A-667

The Glacier Metal Co. Ltd.	E-363
Glas Keramik	E-405
Goetze AG	(NA)
B.V. Machinefabriek D.E. Gorter	E-391
Gosau B.V.	O-742
v.d. Graaf Werktuig & Constructiebouw B.V.	E-333
Grandi Motori Trieste ..	E-349
Granges Repair Service GmbH	E-345
Graviner	(NA)

Grenco B.V. Afd. Schepen	O-712
De Groot Nijkerk Machinefabriek	E-341
Pompes Guinard	(NA)
Gottfred H. Petersen	(NA)
Handelscompagnie B.V. ...	N-815
Schiffahrts-Verlag "Hansa"	(NA)
"Dieselbedrijf Hardinxveld" BV	E-347
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Heinen & Hopman B.V. ...	E-329
Hendriks Interlining & Co.	(NA)
Heybroek & Co. Handelsmij. B.V.	E-389
Hiab-Foco B.V.	O-724
Hoekloos B.V.	W-202
Holec Machines Systemen Groep	E-362
Radio Holland B.V.	F-382
Holland Foundation Equipment	N-812
Holland Repair & Service BV	A-640
Holland Shipbuilding	E-321
Hollming Oy	E-356
BV Holmatro Ind: Equipment	V-506
Hoogerwerf Staalkabel BV	Z-119
De Hoop Groenpol B.V. ...	A-623
Howaldtswerke-Deutsche Werft AG.	(NA)
Hungarian Shipyards And Crane Factory	A-654
Hungexpo	N-824
Hutchinson Industrie	E-418
Hydraudyne B.V.	E-371
Hydroland S.A.F. Du Ferodo	E-409
Ing. Bureau Hartogs ..	A-689/2
Hydrowega Holland B.V.	E-331
I.F.G.-Dr. M. de Wit	Z-112
Imbema B.T.I., B.V.	A-669
Impexpo	Z-217
Ina Naaldlager Mij. B.V.	E-360
Inchcape Export Ltd.	Z-108
Indumij N.V.	E-403
Intec Press B.V.	E-418-2
Intermundo B.V.	E-384-3
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International Navigatie Apparaten B.V.	Z-118
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De Jong & Lavino B.V. ...	N-810
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Kleber Colombes	E-373
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B.V. Technisch Bureau Van	O-756
K.L.M. Nederland	E-412/1
Kloekner-Humboldt-Deutz A.G.	(NA)
Kloekner-Werke AG	(NA)
K.M.K. Kompressorenbau	(NA)

(continued on page 78)



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Mariners Seek Texaco's "STAR" Products

Telephotos of the Trifid Nebula reveal its glorious array of color. More familiar, however, is the star Nunki, one of 58 chosen by navigators

to help guide them across trackless seas to ports like New Orleans. For marine service and products proven to be as reliable as these celestial bodies, mariners seek Texaco and its star products.

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International Marine Sales Dept.
2000 Westchester Ave./White Plains, NY 10650
Phone: (914) 253-4000
Texaco Ltd.
International Marine Sales Europe
1 Knightsbridge Green/London SW1X 7QJ
Phone: 01-584-5000*

Europort '81

—Exhibitors

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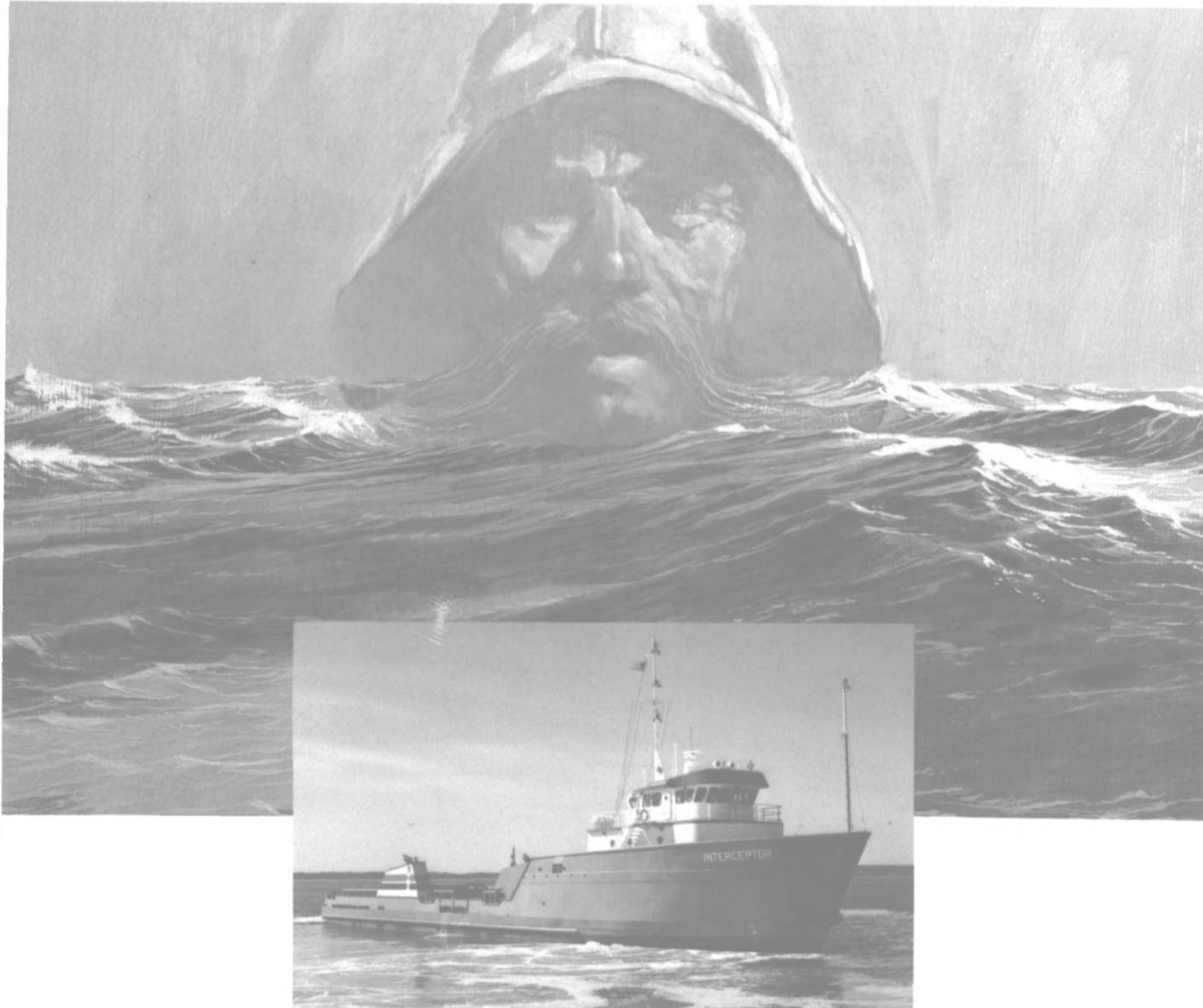
G.A. De Knecht B.V. A-632
 K.N.Z.H.R.M. A-699
 J. Kobelt Manufacturing
 Ltd. (NA)
 Koepcke Agenturen
 B.V. O-718
 Koning En Brevini A-607
 Kontram Oy (NA)
 Konijn Hoorn Machinebouw
 B.V. E-354

Krolex Scheepvaart-
 & Handels-
 Onderneming A-690/1
 Diesel Krome Engineering
 B.V. E-320
 Kroon B.V. Z-139
 Friedrich Krupp GmbH .. (NA)
 Krupp MaK GmbH E-375
 Kuyl & Rottinghuis .. A-699/2
 Oy Kontram AB O-701
 Scheepswerf Kunst A-609/2
 Laan & Kooy E-314
 Lamers
 Reinigingstechniek E-335

Van Leeuwen Buizen
 B.V. A-601
 Leonard Lang B.V. A-677
 Van Lessen & Punt
 B.V. V-512
 Lips B.V. A-649
 Dr. Lorenz & Bogo GmbH
 & Co. KG W-205/W-240
 MacGregor Holland
 B.V. A-618
 Maessen, Dhr. A-633
 Mak Nederland B.V. E-375
 M.A.N.
 Maschinenfabrik O-710

Motoren-Werke Mannheim
 AG (NA)
 Mariflex Services B.V. .. E-324
 Matex Deuren B.V. E-368
 Matra B.V. Z-137
 Mennens & Co.
 Handelsmij
 B.V. Z-120/Z-138
 Scheepswerf En
 Machinefabriek
 Merwede N.V. E-381
 Metalas Holland B.V. D-503
 Oy Metos Marine (NA)
 Jos L. Meyer (NA)
 Millstone Electronics A-691
 Ministerie V. Landouw
 & Visserij Dir. Visserijen/
 Afd. Vormgeving E-415
 Mobil Oil B.V. A-651
 Motor-Parts B.V. O-759
 MTU Motoren Und Turbinen
 Union Friedrichshafen
 GmbH O-711
 Oy Metos Marine E-412-2
 Metagis B.V. Z-126-2
 Napier Turbochargers
 Ltd. (NA)
 National Forge Co. O-769
 Nautica Sport A-671
 Nautiservo B.V. E-386
 "Navimpex", Centrala
 Navala N-825
 Nebim Handelsmij A-622
 Nederlandse
 Middenstandsbank
 N.V. A-635
 Nederlandse
 Scheepshypotheekbank
 N.V. A-638
 Nico International
 -Sweden E-417
 Niessen Staal-En
 Scheepsbouw B.V. A-656
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 T.M. Noten B.V. O-716
 Nova Werke AG N-822
 NRF Thermal Engineering
 B.V. Z-100
 Navikaris V-508-1
 Navimor E-384.2
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 "Oranje", Vereniging .. A-605
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 Pax Marine AB E-364
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 Pimentel-Granaat B.V. .. E-359
 Pleuger Techniek B.V. .. E-348
 Polomnis B.V. A-608
 Pols Agregaten B.V.
 -v. Goor-Key E-322
 Potgieser B.V.,
 D. Plaatwerkerij A-698
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 Rabo Bank Nederland .. A-613
 Rauma Repola Oy (NA)
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 Eisenwerke (NA)
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 Rijnmond Engineering
 B.V. A-680

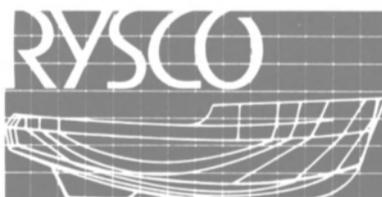
(continued on page 80)



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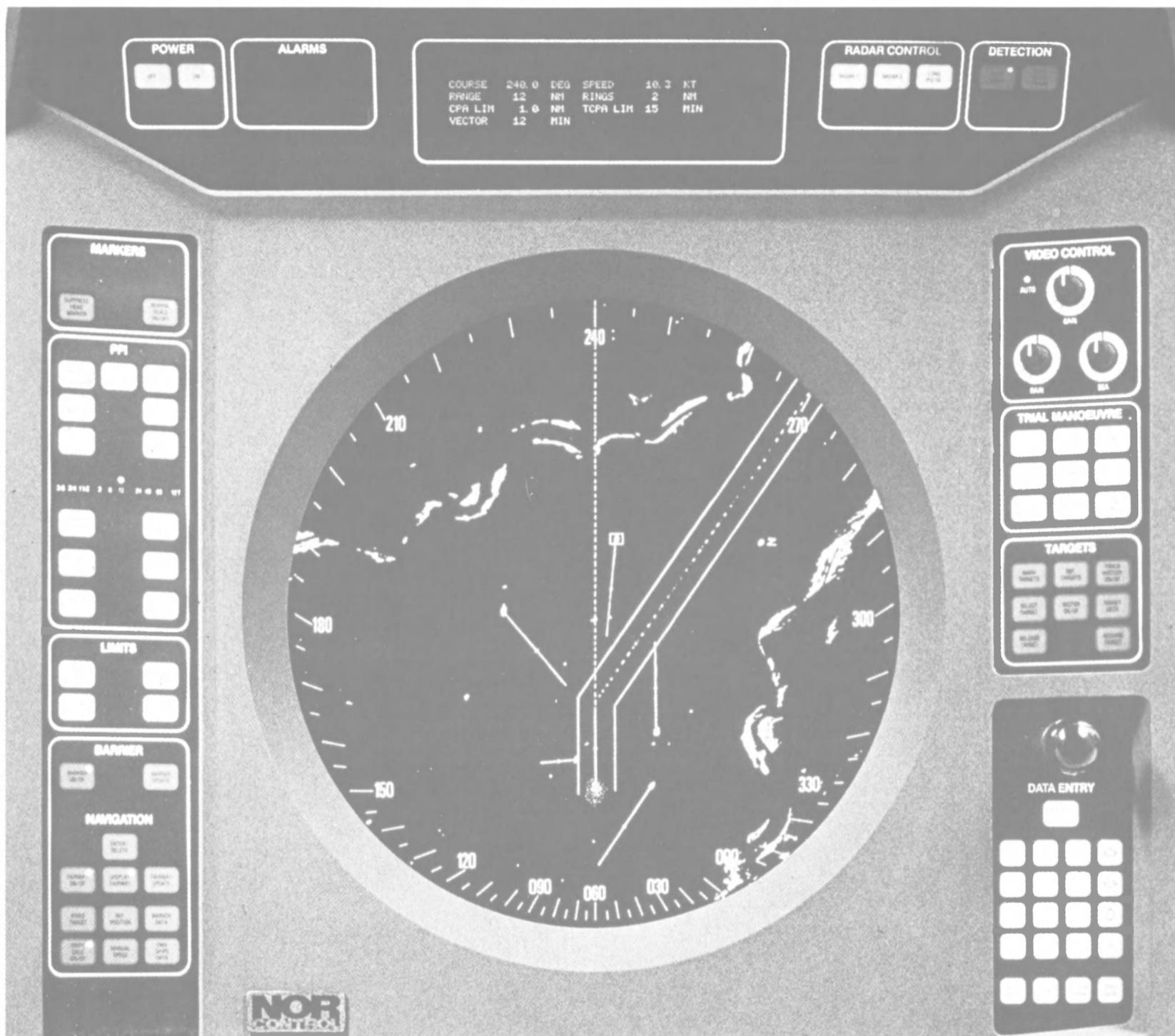
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DATABRIDGE 7 THE ULTIMATE ARPA



DataBridge 7 is a third-generation Automatic Radar Plotting Aid that acquires and tracks up to 50 radar targets and continuously displays collision avoidance data on the most threatening 20. It will sound a collision warning alarm whenever any of these target tracks exceed user specified values for closest point of approach and time to closest point of approach. As a collision-avoidance system, it meets or exceeds all IMCO recommendations and U.S. Maritime Administration (USCG) Standards, soon to be mandatory for all vessels over 10,000 gross tons.

The DB-7 acquires targets throughout the operator-designated search area—not just when a target penetrates a guard ring. The system displays anti-collision data in the form of vectors superimposed over a daylight viewable 16" radar presentation. Operator selection of true or

relative vectors, and vector length provide the utmost in system flexibility. Full trial maneuver facilities, including operator selection of time-to-maneuver, quickly and clearly show the results of maneuver alternatives. The DB-7 warns the operator when the proposed maneuver does not satisfy his CPA and TCPA criteria or when it will bring him into conflict with a previously non-threatening target.

And DataBridge 7 is much more than a simple ARPA. Channels and fairways, radar locked to fixed geographical references, can also be displayed. In addition to warning the operator if the vessel

strays from its intended track, this display provides the information that is vital to assure that a maneuver to avoid a collision with another ship does not result in a collision with the bottom.

And Norcontrol hasn't forgotten the operator. In addition to a control panel layout designed to simplify operation and reduce fatigue, the DB-7 includes a built-in training simulator. Preprogrammed training exercises are presented to the officer to develop his ability to operate the system and effectively use all of the information it provides. Operational problems related to new crew members or crew turnover are virtually eliminated.

Finally, Norcontrol's unquestioned reputation for reliability and service are your best assurance that the DB-7 will operate perfectly and keep on working for years to come.

**NOR
CONTROL**

Norcontrol Division of Kongsberg AS, P.O. Box 145, Horten, Norway 3191 • (47-33) 41-436
Maritime Division, Kongsberg North America, Inc., 135 Fort Lee Rd., Leonia, NJ 07605 • (201) 947-6788

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Europort '81

—Exhibitors

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Rijn-Schelde-Verolme
RSV O-744
Diesel Bedrijf Rotterdam
B.V. E-353
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Koolzuur B.V. O-771
Roodenburg B.V. A-660

Saarloos Warmtetechnik &
Airconditioning N-801
SACM E-394
Sakaphen GmbH & Co.
KG (NA)
Samofa Diesel B.V.,
MHI N-800
Sander KG, Wilhelm Z-123
Sanders & Zoon N.V.,
G.B. E-383
Scanmaso B.V. D-502
Scheeps Diesel Motoren
MIJ E-352

Schram Bolnes B.V.,
Scheepswerf E-351
Schichau Unterweser
AG (NA)
Schiffcommerz GmbH .. E-407
SIHI Maters Z-117
Skyfotos Ltd. (NA)
Snijder Hasselt B.V. .. A-699-3
Sofrance (NA)
Spamar Engineering Z-114
Sperry Marine Systems .. E-411
Staa & Zn. V.D. Z-126.1

Steenkist-Rooymans B.V.,
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Stigt B.V., Techn.
Handelsond., Van E-343
Schmidt GmbH, Karl E-376
Schottel Nederlands
B.V. A-685
Schrader Bellows
Division D-501
Schreiner & Co.
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Schuttevaer De,
Weekblad A-678
Seehafen-Verlag (NA)
Sempres B.V.,
Machinefabriek E-301
Shell Nederland
Verkoopmij; B.V. A-694
Shipmate Vlag
J. Thurmer A-615
Ships Radio Services
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Stork Services B.V. O-713
Stork Werkspoor Diesel
B.V. E-828
Stromag GmbH,
Maschinenfabrik (NA)
Struik & Hamerslag N-816
Swedish Telecom O-723
Scan Steering A/S (NA)
Tangie Engineering
Ltd. (NA)
TBO B.V., Techn.
Industrie Z-116
Techmaton N.V. O-722
Technautic B.V. A-621
Technocommerz GmbH .. E-406
Tecnica Gali S.A. A-611
Telstar Harderwijk
B.V. A-687
Thyssen Industrie AG (NA)
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Transmark B.V. N-805
Triton B.V.
Dassenfabriek D-505
Troost & Zn. B.V., M.J. .. A-624
Tubeman Electronics Z-130
Turbo-Technik GmbH .. O-760
Transport Efficiency N-803
Taselaar B.V. A-653
Ubel B.V. E-372
United Kingdom British
Marine Equipment
Council O-745.1
USA O-725
Europort Organization
Inc. O-740
Valmet Oy Helsinki
Shipyard (NA)
Vecom B.V. N-817
Velp B.V.,
Rubberfabriek E-393-1
Veltman B.V., J.J. E-388
Venteville, Nautish en
Technisch Bur. W-200
Vereingte Deutsche
Nickel-Werke AG (NA)
Vickers Shipbuilding
Group Ltd. (NA)
'Visserij Wereld, De'
Weekblad V-511
Vlaardingen-Oost
Bedrijven B.V. O-754
Voorden Groep, Van E-315
Vredestein Industrial
Products B.V. E-378
Vries B.V., A. de A-684
Vugt B.V., Van A-619
Vikubo B.V. N-826
Van Der Velden B.V. ... O-675-1
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 B.V. E-327
 Wagner Engineering
 Ltd. A-644
 Walker Nederland N.V.,
 James Z-125
 Warman, Benelux,
 Simon Z-103
 Wartsila (NA)
 Wartsila Vasa Diesel E-408
 Watersport B.V. E-325
 Weka Krimpen B.V. E-340
 Wennekes, Firma A-657
 Werimex B.V. E-377
 Westfalia Separator
 AG (NA)
 Zahnradfabrik
 Friedrichshafen AG .. O-741
 Radio Zeeland E-318
 Technisch Handelsbureau
 Zeilstra Z-104
 Machinefabriek
 Zijlman A-609-1
 Zeevenhoven & Co.
 N.V. V-508-2

New Hempel Calendar Features Six Illustrations Of Famous Windjammers

Readers can no doubt remember when hundreds of thousands of spectators flocked to the start of Operation Sail, commemorating the bicentennial in 1976, to witness the unique and fascinating sight of training ships under full sail.

Hempel's Marine Paints, New York, N.Y., one of the largest independent marine paint manufacturers, commissioned the well known Scottish artist John Gardner to draw six of the largest windjammers as illustrations for their 1982 calendar.

Hempel has often used John Gardner as illustrator for their calendars with great success. The 1982 calendar will surely become a collector's item, particularly the front page depicting several ships together at the start of a Tall Ships race.

MarAd Is Favorable To Proposed Construction Of ITB Incinerator Vessels

The Maritime Administration has notified At-Sea Navigation Inc. of its general willingness to provide Title XI financing to aid in the construction of two integrated tug barge vessels for incineration of chemical wastes at sea.

At-Sea Navigation is actively developing an incineration-at-sea project and is in the process of obtaining necessary permits and negotiating contracts for design-

ing and developing plans for on-shore waste collection terminals.

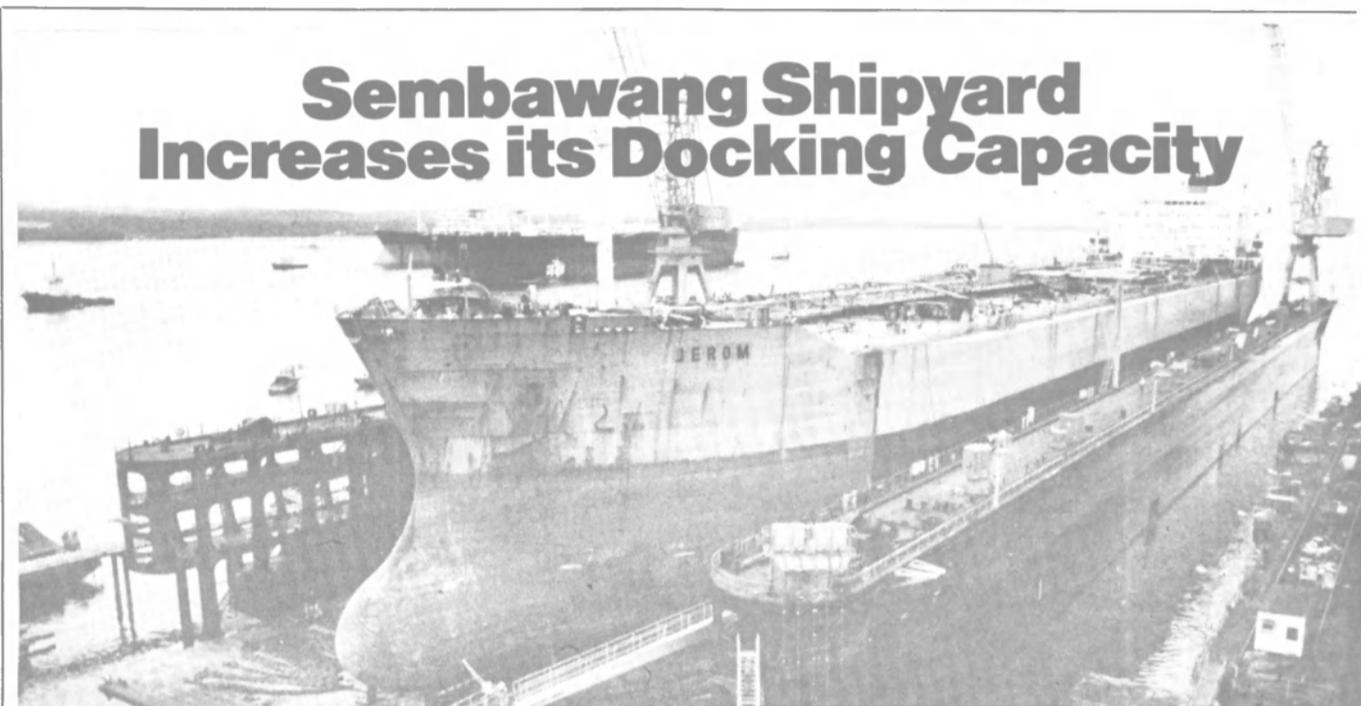
Tank trucks will collect and transport hazardous chemical wastes from customer sites to marine terminals. The vessels will take the wastes to a burn site off the eastern coast of the United States. Upon completion of project plans and details, At-Sea will update its application and request formal MarAd Title XI approval.

Guralnick Assoc. Awarded Contract To Study Vessel Boiler Emissions

Morris Guralnick Associates, Inc. (MGA), San Francisco-based firm of naval architects and marine engineers, was recently awarded a contract to assist in a study of marine boiler operations relating to vessel exemptions from emission control standards established by California law in 1978.

The purpose of the study, commissioned by the State Air Resources Board (ARB) under mandate of the California legislature, is to help determine the need for continuing emission exemptions beyond their scheduled expiration date of January 1, 1984.

MGA will study the emissions and measures that may be taken to minimize emission content, and advise the ARB as to what course of action should be followed.



Sembawang Shipyard Increases its Docking Capacity

The new 150,000 dwt President Floating Dock is now fully operational

Sembawang Shipyard, a fully integrated shiprepairing organisation, recently completed an extensive expansion programme to meet the challenges of the eighties and to serve you better. An integral part of this programme is the new 150,000dwt floating dock which is now fully operational.

Special features of the new floating dock include remote control of the pumping/ballasting operations, sonic system for guidance of vessel entering dock and a ring main for automatic high pressure fresh water cleaning of hull. It is equipped with 4 units of the highly versatile dock-arms, each with a maximum payload of 400kg. Two travelling dock cranes of 35-ton and 15-ton capacities are also installed, together with the inclusion of the hauling-in system.

Dock Characteristics

A) Principal particulars
 Capacity of Dock 150,000dwt
 Lifting Capacity (rated) 40,000 tonnes

B) Main Dimensions
 Length overall 290.0 metres
 Breadth moulded over flared side walls at upper deck 63.0 metres
 Clear width between fenders 48.0 metres
 Height of keel blocks 1.80 metres

C) Dock Services
 Cranes -
 One 35T travelling crane. — SWL 35 tons at 34 radius/15 tons at 45M radius
 One 15T travelling crane. SWL 15 tons at 35M radius/7.5 tons at 45M radius

Travelling dock arm:-
 Four (4) diesel driven travelling dock-arms maximum outreach from wing wall to the front of stage: 27 metres, travelling speed: 2m/min — 25 m/min (stepless), boom slewing angle: 180°

Hauling and mooring equipment:-
 1) Six (6) x electric Ward-Leonard control winches, rated pull at 1st layer: 15 tons, rated speed at 1st layer 15m/min
 2) Two (2) hauling-in trolleys

Automatic high pressure water cleaning pumps to:-
 Two (2) horizontal triplex plunger pumps T-150260 Capacity: 195L/min, pressure 150-260 kg/cm².

Fire, deck wash and ballast pumps:-
 Two (2) electrically drive fire-pumps Capacity: 400 m³/hr each at 150m. Aq

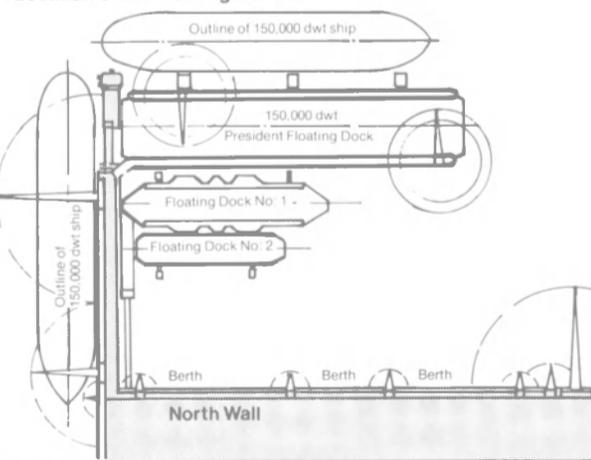
Dock Blocks:-
 Steel construction keel and side blocks, with wooden cappings

- D) Services for docked and alongside The New Floating Dock supplied from yard's facilities**
- 1) Compressed air main
 - 2) L.P.G. main
 - 3) Oxygen main
 - 4) Fresh water main with 65ND distribution valves
 One set of 20 m³/h x 30 m TH electric pump with a buffer tank of 50m³ installed on dock to ensure F.W. supply
 - 5) Fire & Deckwash Main

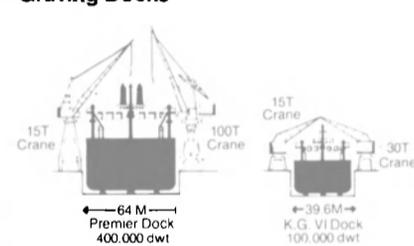
Docks at Sembawang Shipyard

Dock	Length	Entrance Width	Max Depth Over Block	Capacity	Crane
Premier	384 M	64 M	9 M	400,000dwt	1 x 100T
President	290 M	48 M	8.5 M	150,000dwt	1 x 35T
KG VI	318.5M	39.6M	13.64M	100,000dwt	2 x 30T
No 1	178 M	26.2M	7.6 M	30,000dwt	2 x 5T
No 2	119 M	19.9M	5.5 M	10,000dwt	1 x 4T

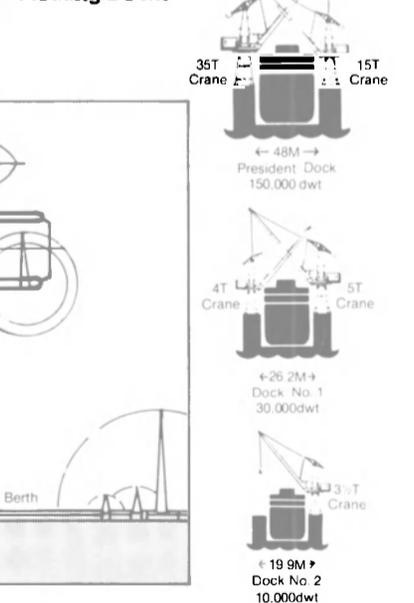
Location of the Floating Docks



Graving Docks



Floating Docks



Sembawang Shipyard

Agent in United States/Canada
 Midland Marine Corporation, One Penn Plaza
 New York, N.Y. 10119, United States of America
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 One Market Plaza, San Francisco, California 94105,
 United States of America. Tel: (415) 777-2577
 Tlx: 9103726603/278773 MIDMARINE
 Cable: MIDMARCORP SAN FRANCISCO

Sembawang P.O. Box No. 3, Singapore 9175.
 Tel: 2571121/2573511/2570461 & 2571216 (35 lines)
 Cable: Semdock Singapore Telex: Semship RS 21345.

Midland Marine Corporation, 11777 Katy Freeway, South Building
 Suite 490, Houston, Texas 77079, United States of America
 Tel: 497-21000 Tlx: 910-880-4191 MIDMARINE HOU
 Cable: MIDMARCORPHOU

Automated Coal Terminal Opens

(continued from page 82)

in the terminal includes a rotary car dumper and train positioner; a rail-mounted stacker/reclaimer; a radial stacker; an alternate reclaim system consisting of a ground level hopper, grillage and tunnel; and a stationary luffing boom-type barge loader. A barge

haul system and interconnecting conveyors and transfer towers also are part of the facility.

The unit train dumping system is designed for automatic, centralized control of the dumper and positioner. Safeguards built into the system include automatic car clamps to hold a fully loaded frozen car, and a manual dumping cycle which permits the operator to visually inspect a car before dumping. Television moni-

tors also are used in this phase of the operation.

When coal leaves the railcar it is discharged through a grillage into a 200-ton surge hopper lined with abrasion resistant plate. Three vibrating feeders, each handling up to 1,500 tons per hour, then move the coal to a series of conveyors and transfer towers.

Within the storage yard, which eventually will have the capability to store up to one million tons



When marine equipment arrives to load coal at the terminal, the stacker/reclaimer picks up the coal at a rate of up to 4,700 tons per hour, delivering it to the barge loader.

of coal, a track-mounted stacker/reclaimer places inbound coal in the appropriate storage location. When marine equipment arrives to load at the terminal, the stacker/reclaimer delivers coal to the barge loader at a rate of 4,700 tons per hour.

Barges are loaded continuously at a rate of 5,700 tons per hour through a system which uses a string of five barges. Unit tows serving the Cora Coal Transfer Terminal will have the capacity to haul up to 50,000 tons of coal.



Unit tows serving the Cora Coal Terminal have the capacity to haul up to 50,000 tons of coal.

The HNG mine-to-market coal handling system includes St. Louis Ship, which operates three shipyards specializing in barges, towboats, and other marine equipment.

Marine equipment utilized at the terminal, as well as other terminals, are operated by another HNG company — Inland Waterways Division (IWD) of Pott Industries. The Division has more than 60 years of operating experience and has a fleet of 650 jumbo barges and towboats ranging to 10,500 hp.

MarAd Publishes Study Of Vessel Operating Costs

The Maritime Administration recently released a 46-page publication containing estimated vessel operating expenses for 41 vessels of various types selected to represent a cross section of the American merchant fleet. The expenses, shown as of July 1980, are intended for use for broad-based estimating purposes only. Copies of the pamphlet "Estimated Vessel Operating Expenses," are available through MarAd's Office of Public Affairs, U.S. Department of Transportation, Washington, D.C. 20590.

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In what may be maritime history, Bay-Houston Towing Company recently christened the four newest members of the fleet all on the same day. Left to right: The Captain W.D. Haden, the W.D. Haden, II, the Barbara H. Neuhaus and the Mark K.

A FAMILY AFFAIR.

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NASSCO's 1000' x 175' graving dock being fully utilized to build the first of three 37,500 DWT Carlsbad Class Product Tankers for Union Oil and to reactivate/re-engine two Alatna Class T-AOG gasoline tankers for the U.S. Navy (MSC).

DEMONSTRATED CAPABILITY

- NASSCO has delivered or is building thirty (30) U.S. Navy auxiliary ships totaling over 392,000 full load displacement tons while also building forty-six (46) cargo ships, bulkers, and tankers totaling over 2,825,000 DWT for the U.S. Merchant Marine. Current backlog includes two AD destroyer tenders and one T-ARC cable repair ship for the U.S. Navy plus seven 37,500-44,000 DWT product tankers for Merchant Marine service.
- Complete reactivation, repair, and conversion capability has been developed for U.S. Navy and Merchant Marine vessels including re-engining and IMCO retrofits.

COMMITMENT TO SHIPBUILDING

- NASSCO has been continuously of service to the U.S. Navy since 1960, building auxiliary ships.
- NASSCO delivered her first merchant ship to American Export Lines in 1961 and has been serving this market ever since.



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Cat Announces New 1,200 RPM 3412 Marine Engine
—Brochure Available

Caterpillar Tractor Co., Engine Division, has announced a new 1,200-rpm 3412 marine engine configuration rated 317 kw (425 hp) at 1,200 rpm continuous and 354 kw (475 hp) at 1,200 rpm medium-duty commercial. This

new configuration was designed to operate within the 450-1,200 rpm range.

A single turbocharger, jacket water aftercooling, and a direct-injection fuel system contribute to the 3412 low-speed marine engine's excellent fuel economy. With a best BSFC of 213 g/kw h (0.350 lb hp-h), the 1,200 rpm 3412 achieves the most efficient fuel economy.

In addition to fuel economy resulting from low-speed operation, other operating costs may be low. Reduced piston and bearing speeds, low mechanical friction, and lower thermal and mechanical loads all tend to enhance engine reliability and durability. Also, due to slower engine speed, engine noise is reduced.

Cat reports the 1,200-rpm 3412 is not merely a "turned down"

1,800-rpm or 2,000-rpm engine. The turbocharger has been resized and injection timing modified to provide excellent fuel consumption and performance at the lower speeds. Fuel injection lines and nozzles have been downsized. The engine coolant pump and lubrication system have been recalibrated for continuous low-speed operation.

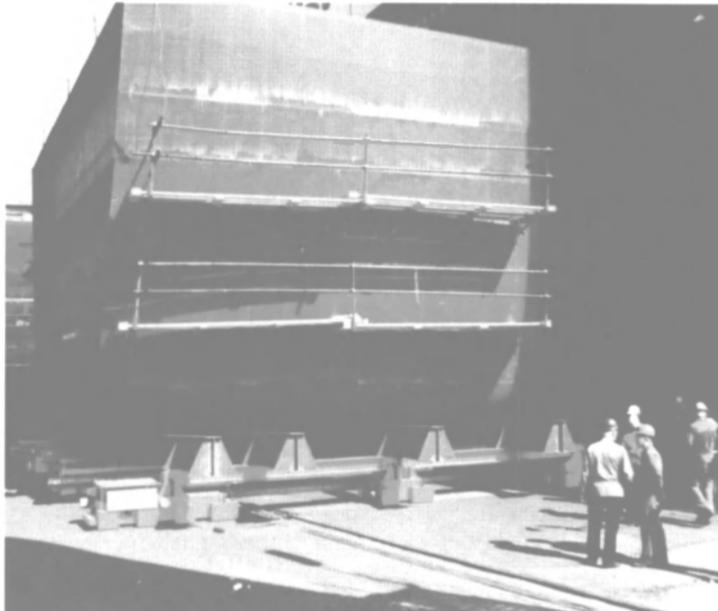
For further information and a copy of the brochure,

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material handling, production flexibility and improved working conditions, without cumbersome and costly equipment. And we build to your requirements and suit your existing shop floor.

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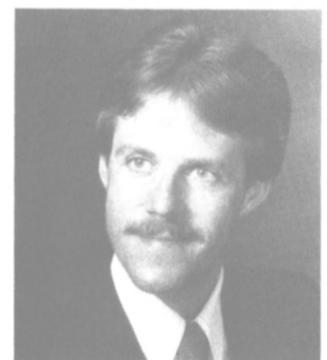
Marathon Singapore Yard To Build Large Drilling Tender For Petrodril

Marathon Manufacturing Company's Republic of Singapore subsidiary, Marathon LeTourneau Offshore Pte. Ltd., has begun construction on a large drilling tender support vessel for Petrodril Company, Inc., a Republic of Panama corporation.

The 320-foot by 70-foot by 34-foot 6-inch drilling tender, largest such vessel ever built at the Marathon facility, is scheduled for delivery in August 1982. It is contracted to support that company's platform drilling program.

Financing for the vessel was arranged under the ECICS, Export Credit Insurance Corporation of Singapore, fixed rate export financing (FREF) scheme and is the first for a vessel of this type. The keel-laying was attended by representatives of Private Investment Company for Asia (PICA), Manufacturers Hanover Trust Company, and Brunei Shell Petroleum, as well as representatives of Petrodril and Marathon.

David Church Named SI-TEX Marketing Manager



David Church

David R. Church has been named marketing manager of SI-TEX Marine Electronics, Clearwater, Fla. He succeeds Ted Hansford who was promoted to general manager.

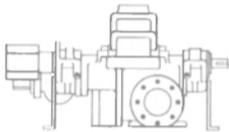
Mr. Church will be responsible for marketing the SI-TEX line of marine radars, depth recorders, Loran C receivers, VHF radios, and ADF equipment. He joined SI-TEX in 1976 as sales administrator and was promoted to sales manager last year.



CAMAR

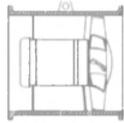
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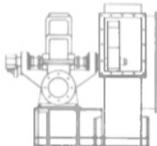
Horizontal and vertical configurations. Vertically-split casings for those requiring economical power; horizontally-split casings where specified. Standard equipment includes constant speed mechanical governor, emergency overspeed trip, metallic or carbon packing. Wheel diameters from 4" to 24". Optional accessories include Woodward governors, back pressure trips, forced-feed lube, pump governors, tachometers, couplings, insulation, special mounting flanges, gageboards, etc. Built to all regulatory requirements. For driving pumps, fans, compressors, generators.

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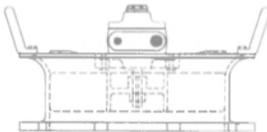
Axial and vane-axial designs. Fan impeller direct-mounted onto motor or turbine shaft. Turbine can be run on steam or air. Explosion resistant throughout. Can be mounted horizontally or vertically. For blowing, exhausting, or sucking. Flanged on either or both ends to meet your specific requirements. Sizes from 9" to 60".

○ TURBINE-FAN PACKAGES—to 90,000 CFM



Centrifugal fans that are either directly mounted onto turbine shaft, or flexibly-coupled with separate bearings. Turbine and fan housing mounted on common bedplate. Fan impellers of aluminum alloy and other corrosion resistant materials. High speed design for efficient operation and minimum space requirements. Specifically designed for forced draft fan, gas-freeing fan, and inert gas fan applications. Sizes from 12" to 42".

○ PORTABLE GAS-FREEING BLOWERS



Close-coupled, light weight, axial flow ventilators complete with water or steam and air turbines. Sparkproof construction for blowing or exhausting in hazardous areas. Size TB-12 designed for mounting directly onto standard Butterworth opening. Other sizes available with special transition pieces to fit onto standpipes and other openings.

○ INERT GAS SYSTEMS



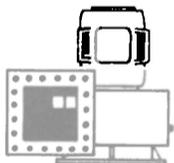
Complete systems for new-buildings or retrofitting. All components designed and manufactured in the United States, consisting of flue gas valves, scrubber, motor or turbine fan packages, gas regulating valve, non-return valve, deck water seal, and main control panel. Optional: auxiliary control panels, fan isolation valves, deck valves, etc. Complete system designed for specific vessel's requirements.

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Varo Forms Searchlight Products Group, Two Appointments Announced

Varo, Inc., Integrated Systems Division of Garland, Texas, has formed a searchlight products group to better serve its customers in the marine industry. Wayland Edwards has been named manager of this new group. Pat Woolheater has been promoted to

sales administrator and will coordinate customer sales activities. L.C. (Bert) Johnson, senior field service representative, will continue to coordinate the Varo-related activities of the dealer/service network on the Inland Rivers, Gulf Coast, and in Canada.

Varo, Inc. is a leading manufacturer of xenon marine searchlights and is well known as a manufacturer of night vision equipment.

Waukesha Offers Brochure On Line Shaft Bearings

Waukesha Bearings Corporation, Waukesha, Wis., a subsidiary of Dover Corporation, offers a wide range of ship propulsion line shaft bearings for shafts from 14- to 36-inch diameters. Three types are available — self-aligning, non-aligning or tilting pad journal bearings. Literature

detailing the types and specifications has been published recently by the company.

A choice of disc, ring, or forced oil lubrication is offered. Adequate oil delivery is insured under all conditions, including extremely low revolutions by self-contained or pressure lubricated systems. A special water cooled bearing can be provided upon request for specific applications.

All Waukesha bearings feature tin babbitting centrifugally applied and metallurgically bonded to the bearing for maximum operational efficiency.

For literature on the Waukesha line of shaft bearings,

Write 16 on Reader Service Card

J.J. Connolly Appointed Port Director By The Port Everglades Authority



James J. Connolly

The Port Everglades Authority announced recently the appointment of James J. Connolly as port director.

An experienced transportation executive, Mr. Connolly will bring over 30 years of maritime experience to his new position at the South Florida seaport. His expertise in the container and passenger ship industries dovetails perfectly with the Port's development program.

Prior to establishing James J. Connolly Associates, Maritime Consultants, Mr. Connolly spent seven years in numerous senior management positions at Seatrain Lines.

Sperry Collision Avoidance Systems —Literature Available

Sperry Marine Systems, Great Neck, N.Y., has published a 12-page booklet describing the capabilities, instrumentation, and installation of its newest line of collision avoidance systems.

One of the features of the system is its assessment of potential collision situations. The Sperry patented "Predicted Area of Danger" (PAD™) uses computer-generated graphics to provide the ultimate solution to the radar plotting problem. The booklet also lists the technical specifications of the equipment.

For a free copy of the Sperry collision avoidance system booklet,

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Foreign Coal Buyers Register Published By Commerce Dept.

The growing importance of coal exports is highlighted in a recently published U.S. Commerce Department trade list of foreign buyers and dealers interested in purchasing the fuel.

Compiled by the International Trade Administration, the 156-page booklet identifies 2,348 agents, distributors, general importers, and end-users of coal. It also includes a list of 66 coal import leads.

The booklet, covering buyers in 98 countries, lists the address, the name and title of an officer, the year the firm was established, the relative size, and number of employees, the telephone number, the telex number, the cable address, and codes indicating the range of products or services of the firm.

The booklet costs \$5 prepaid from the U.S. Department of Commerce, Room 1312, Washington, D.C. 20230, telephone (202) 377-2988. It is also available from Commerce Department district offices.

New Epoxy Coating From Devoe/Prufcoat —Literature Available

A new epoxy polyamide coating with the corrosion resistance of coal tar epoxy, but without its application or toxicity problems, has been introduced recently by Devoe/Prufcoat, Devoe & Reynolds Co., a division of Grow Group, Inc.

Known as CHEM-TAR™ High Build Epoxy Coating, it may be applied wherever conventional coal tar epoxy is specified and gives steel and masonry excellent abrasion and corrosion resistance to sewage, oil, alkali, dilute acids, fresh water, and salt water.

According to the company, CHEM-TAR Epoxy is easily applied and has an extended recoat time of up to seven days for immersion service, and up to 60 days in non-immersion service. It will cure effectively at temperatures down to 40° F, and features a high film build (8.0 mils dry film thickness). Other advantages include fewer health hazards because of low toxicity levels and excellent package stability for more than one year.

Steel surface preparation requires a near white blast (SSPC-SP10) in severely corrosive areas, and a commercial blast (SSPC-SP-6) in moderately corrosive areas. Normally applied by spray application in two coats at 8.0 mils dry per coat, CHEM-TAR Epoxy is self-priming on most surfaces.

For more information, Write 41 on Reader Service Card

November 1, 1981

Duraline Introduces New Portable Heaters, Blowers —Literature Available

Duraline, of Islip, N.Y., a division of J.B. Nottingham Co., Inc., has introduced two new units on the market: model V500A portable ventilation blower and model V20KW portable heater attachment.

Duraline's V500A blower has

two unique features: all-aluminum construction and a low weight of 48 pounds. It is the only unit of its kind with a rated capacity of 700 cfm. This unit includes a 1.5-hp, 230/460-volt, 3-phase, dust-tight motor and starter, internally wired. It's light enough to be hand-carried, well suited for ventilating hard-to-reach locations.

Duraline's V20KW heater, designed specifically for use with

the V500A blower, is also lightweight (58 pounds) and easily hand-carried. Combined, the two units are ideal for drying out tanks and compartments. Each unit has its own switch for overload protection, and they need only be field connected. Overall dimensions are 28 inches long by 16 inches wide by 24 inches high.

For more information, Write 22 on Reader Service Card

The top performers from Contromatics.

Performance is the key consideration when selecting valves and actuators for demanding industrial applications. But if you're not choosing Contromatics, you're paying too much. Or settling for second best.

Because no other line of fluid control products gives you more performance for your dollar. In nearly any application. Virtually every time.

Here's a quick look at the Contromatics line of top performers.

BALL VALVES

Contromatics ball valve line includes sizes from 1/2" through 8". Screwed, welded, and flanged ends. Standard and full port. Two-way and three-way. In all popular materials and body styles.

Plus flush-bottom tank, fire safe, high pressure, double lock-nut, steam, and chip valves.

Contromatics ball valves feature a pressure-seated, blow-out-proof stem arrangement that uses line fluid flow to ensure maximum sealing action. As well as a locked-in, one-piece seat and body seal that prevents cold flow. And a compact, three-piece design that makes in-line maintenance fast and easy.

Contromatics line also includes Comanche economy ball valves from 1/2" through 2", in brass, carbon or stainless steel. Featuring pressure-seated, blow-out-proof stems and a TFE seat design, Comanche valves offer top performance in applications too demanding for ordinary economy valves.

VALVE ACTUATORS

Compact Contromatics pneumatic actuators can add dependability, efficiency, and economy to any fluid control system.

Adaptable to 1/4-turn valves of nearly any size, type, or make, Contromatics double acting and spring return actuators are normally furnished in aluminum construction but are available in ductile iron, bronze and stainless steel as well. A wide torque range (87 to 60,230 in. lbs.) and a complete control accessory line lets you choose the right actuator for every job.

CONTRO-SEAL BUTTERFLY VALVES

Contro-Seal is the high-performance butterfly valve that combines superior design, easy installation, and smooth, economical operation in single fluid control package.

Offering the application flexibility of a ball valve Contro-Seal butterfly valves are replacing gate, globe, and plug valves in many demanding applications.

The compact design and light weight of Contro-Seal valves reduce space requirements and make installation quick and easy. Seat replacement is simple, too, since no special tools are needed, and removal of the shaft and disc are not required.

Bubble-tight shut-off in both directions, a seat that's self-compensating for wear and excellent flow and throttling characteristics are some of the other features that make Contro-Seal performance superior to that of other wafer-type valves.

Contro-Seal valves are available from 3" to 24" (larger on application), to pressures to 720 psi and temperatures to 425F. And they can be fabricated from a variety of materials to meet application requirements.

THE CONTROMATICS LINE

So when you're choosing valves and actuators for tough industrial applications, check out the line that gives you the most for your money.

The top performers from Contromatics.

Call or write us for more information and the name of your nearest Contromatics distributor.

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CONTROMATICS

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...of a regional emergency. Thomas McGehee and Associ... with the installation of the sys-tem



Caterpillar powered Eagle is launched at Atlantic Marine.

Two Ferries From Atlantic Marine For Service In Biscayne Bay

Atlantic Marine, Inc. of Ft. George Island, Fla., is completing the outfitting of two 75-ton, double-ender ferryboats for Island Developers, Miami.

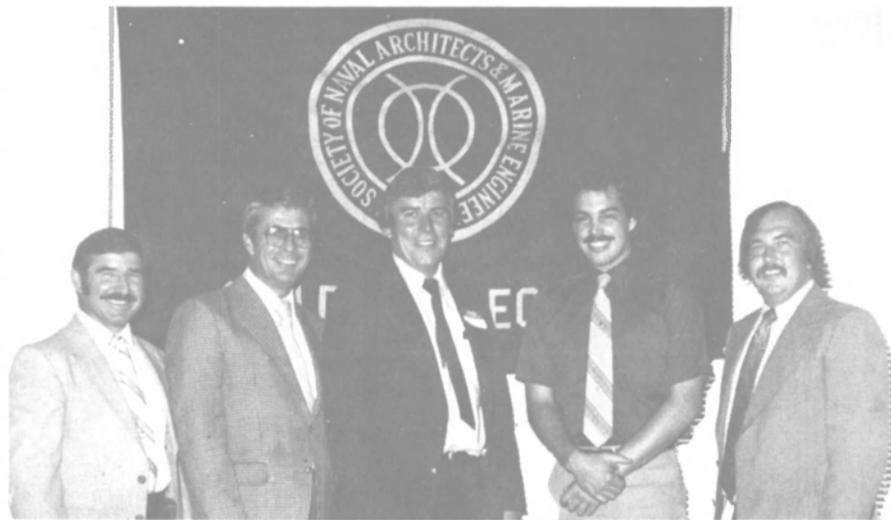
The Pelican was delivered in October, while the Eagle has been launched and will be delivered before the end of the year. The 120-foot by 46-foot by 12-foot ferries are powered by two Caterpillar D-353 engines and are designed to carry 22 vehicles, 100 passengers, and a crew of three. Lounge seating capacity is 32 persons.

The boats will be used for transportation to and from Fisher Island in Biscayne Bay.

Atlantic Marine, Inc., located at the intersection of the St. Johns River and the Intracoastal Waterway, was established in 1964. The Jacksonville area shipyard constructs steel-hulled fish-

ing boats, workboats, and specialized vessels for offshore and river use.

PELICAN/EAGLE	
Main Propulsion	(2) Caterpillar D-353
Propeller	Columbian Bronze Corp.
Shaft	J.M. Tull Metals Co. (tail) A.M. Castle (line)
Bearings	Copper Bearing Co.
Generator	Detroit Diesel
Panel	Con-Select
Engine Controls	Mathers Controls, Inc.
Steering	Wagner Hydraulic
Engine Monitors	National Marine Service
Pumps	Burks, Hydromatic, Sperry Vickers
Air Compressors	Quincy
Coatings	International Paint
Radar	ITT Decca
Electronics	VHF Radio/Raytheon



The officers and guests at the SNAME San Diego Section meeting, from left to right: Robert Wernli, author; Don MacDonough, chairman; Kurt Schmidt, vice chairman; Craig Bunge, executive committee member, and Steven Donley, secretary-treasurer.

SNAME San Diego Section Hears Paper On Unmanned Submersibles

The San Diego Section of The Society of Naval Architects and Marine Engineers began its 1981-82 program with a presentation on unmanned marine vehicles. Thirty members and guests of SNAME met at the Half Moon Inn in San Diego to hear Robert Wernli of the Naval Ocean Systems Center discuss his paper, "Experience with an Unmanned Vehicle-Based Recovery System."

The paper and presentation surveyed various types of unmanned and remotely controlled submersibles and focused on the manipulative and vehicle position-

ing features of the "Work Systems Package/Pontoon Implantation Vehicle." Through practical test programs, Mr. Wernli and his colleagues at NOSC have formed a technology base for continued development of these remotely controlled submerged vehicles. NOSC's design philosophy for these machines also was discussed. The goal of their design effort is remotely controlled systems, "that are as simple and rugged as the ocean itself."

Kockumation Names Three Agents In U.S. For Sales And Service

Kockumation AB of Malmo, Sweden, a world leader in the production and marketing of marine electronic equipment, recently announced the firm is now represented by three separate agents for coast-to-coast sales and service in the U.S.

NavCom Inc. of New York represents Kockumation on the East Coast and in the Great Lakes region. Collins Marine Corp. of San Francisco is the representative on the West Coast. On the Gulf Coast, Maricon Instruments of New Orleans is the representative.

All three agents will supply and service the entire range of Kockumation products, including Loadmaster cargo calculation instruments, Levelmaster systems for gauging tank levels and cargo volumes, Steermaster systems for precision maneuvering and the Tyfon line of acoustic signalling equipment.

NavCom Inc. is located at 9 Brandywine St., Deer Park, N.Y. 11729. Collins Marine Corp. is located at Pier 32, San Francisco, Calif. 94105. Maricon Instruments Inc. is located at 1131 Lafayette Street, New Orleans, La. 70052.



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**Foreign Coal Buyers
Register Published
By Commerce Dept.**

The growing importance of coal exports is highlighted in a recently published U.S. Commerce Department trade list of foreign buyers and dealers interested in purchasing the fuel.

Compiled by the International Trade Administration, the 156-page booklet identifies 2,348 agents, distributors, general importers, and end-users of coal. It also includes a list of 66 coal import leads.

The booklet, covering buyers in 98 countries, lists the address, the name and title of an officer, the year the firm was established, the relative size, and number of employees, the telephone number, the telex number, the cable address, and codes indicating the range of products or services of the firm.

The booklet costs \$5 prepaid from the U.S. Department of Commerce, Room 1312, Washington, D.C. 20230, telephone (202) 377-2988. It is also available from Commerce Department district offices.

**New Epoxy Coating
From Devoe/Prufcoat
—Literature Available**

A new epoxy polyamide coating with the corrosion resistance of coal tar epoxy, but without its application or toxicity problems, has been introduced recently by Devoe Prufcoat, Devoe & Reynolds Co., a division of Grow Group, Inc.

Known as CHEM-TAR™ High Build Epoxy Coating, it may be applied wherever conventional coal tar epoxy is specified and gives steel and masonry excellent abrasion and corrosion resistance to sewage, oil, alkali, dilute acids, fresh water, and salt water.

According to the company, CHEM-TAR Epoxy is easily applied and has an extended recoat time of up to seven days for immersion service, and up to 60 days in non-immersion service. It will cure effectively at temperatures down to 40° F, and features a high film build (8.0 mils dry film thickness). Other advantages include fewer health hazards because of low toxicity levels and excellent package stability for more than one year.

Steel surface preparation requires a near white blast (SSPC-SP10) in severely corrosive areas, and a commercial blast (SSPC-SP-6) in moderately corrosive areas. Normally applied by spray application in two coats at 8.0 mils dry per coat, CHEM-TAR Epoxy is self-priming on most surfaces.

For more information,
Write 41 on Reader Service Card

**Duraline Introduces New
Portable Heaters, Blowers
—Literature Available**

Duraline, of Islip, N.Y., a division of J.B. Nottingham Co., Inc., has introduced two new units on the market: model V500A portable ventilation blower and model V20KW portable heater attachment.

Duraline's V500A blower has

two unique features: all-aluminum construction and a low weight of 48 pounds. It is the only unit of its kind with a rated capacity of 700 cfm. This unit includes a 1.5-hp, 230/460-volt, 3-phase, dust-tight motor and starter, internally wired. It's light enough to be hand-carried, well suited for ventilating hard-to-reach locations.

Duraline's V20KW heater, designed specifically for use with

the V500A blower, is also lightweight (58 pounds) and easily hand-carried. Combined, the two units are ideal for drying out tanks and compartments. Each unit has its own switch for overload protection, and they need only be field connected. Overall dimensions are 28 inches long by 16 inches wide by 24 inches high.

For more information,
Write 22 on Reader Service Card

The top performers from Contromatics.

Performance is the key consideration when selecting valves and actuators for demanding industrial applications. But if you're not choosing Contromatics, you're paying too much. Or settling for second best.

Because no other line of fluid control products gives you more performance for your dollar. In nearly any application. Virtually every time.

Here's a quick look at the Contromatics line of top performers.

BALL VALVES

Contromatics ball valve line includes sizes from 1/2" through 8". Screwed, welded, and flanged ends. Standard and full port. Two-way and three-way. In all popular materials and body styles.

Plus flush-bottom tank, fire safe, high pressure, double lock-nut, steam, and chip valves.

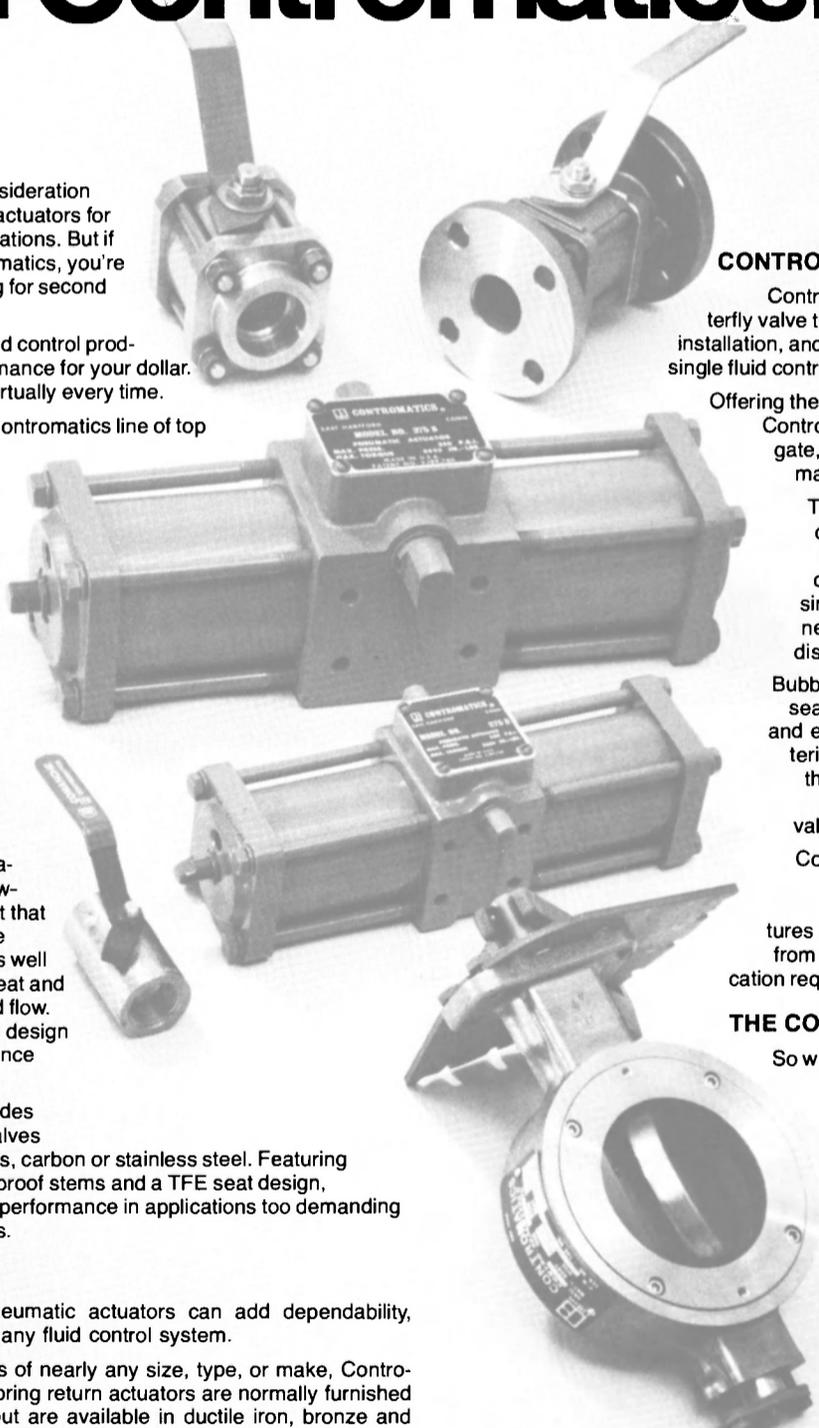
Contromatics ball valves feature a pressure-seated, blow-out-proof stem arrangement that uses line fluid flow to ensure maximum sealing action. As well as a locked-in, one-piece seat and body seal that prevents cold flow. And a compact, three-piece design that makes in-line maintenance fast and easy.

Contromatics line also includes Comanche economy ball valves from 1/2" through 2", in brass, carbon or stainless steel. Featuring pressure-seated, blow-out-proof stems and a TFE seat design, Comanche valves offer top performance in applications too demanding for ordinary economy valves.

VALVE ACTUATORS

Compact Contromatics pneumatic actuators can add dependability, efficiency, and economy to any fluid control system.

Adaptable to 1/4-turn valves of nearly any size, type, or make, Contromatics double acting and spring return actuators are normally furnished in aluminum construction but are available in ductile iron, bronze and stainless steel as well. A wide torque range (87 to 60,230 in. lbs.) and a complete control accessory line lets you choose the right actuator for every job.



CONTRO-SEAL BUTTERFLY VALVE

Contro-Seal is the high-performance butterfly valve that combines superior design, easy installation, and smooth, economical operation in a single fluid control package.

Offering the application flexibility of a ball valve, Contro-Seal butterfly valves are replacing gate, globe, and plug valves in many commanding applications.

The compact design and light weight of Contro-Seal valves reduce space requirements and make installation quick and easy. Seat replacement is simple, too, since no special tools are needed, and removal of the shaft or disc are not required.

Bubble-tight shut-off in both directions, seat that's self-compensating for wear, and excellent flow and throttling characteristics are some of the other features that make Contro-Seal performance superior to that of other wafer-type valves.

Contro-Seal valves are available from 3" to 24" (larger on application), for pressures to 720 psi and temperatures to 425F. And they can be fabricated from a variety of materials to meet application requirements.

THE CONTROMATICS LINE

So when you're choosing valves and actuators for tough industrial applications, check out the line that gives you the most for your money.

The top performers from Contromatics.

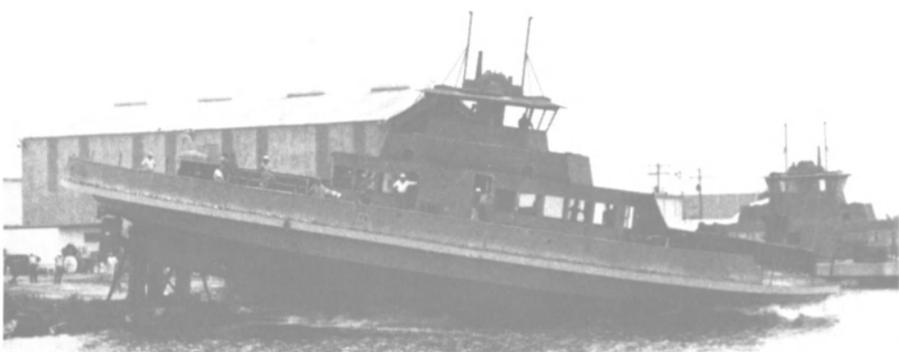
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CONTROMATICS

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Caterpillar powered Eagle is launched at Atlantic Marine.

Two Ferries From Atlantic Marine For Service In Biscayne Bay

Atlantic Marine, Inc. of Ft. George Island, Fla., is completing the outfitting of two 75-ton, double-ender ferryboats for Island Developers, Miami.

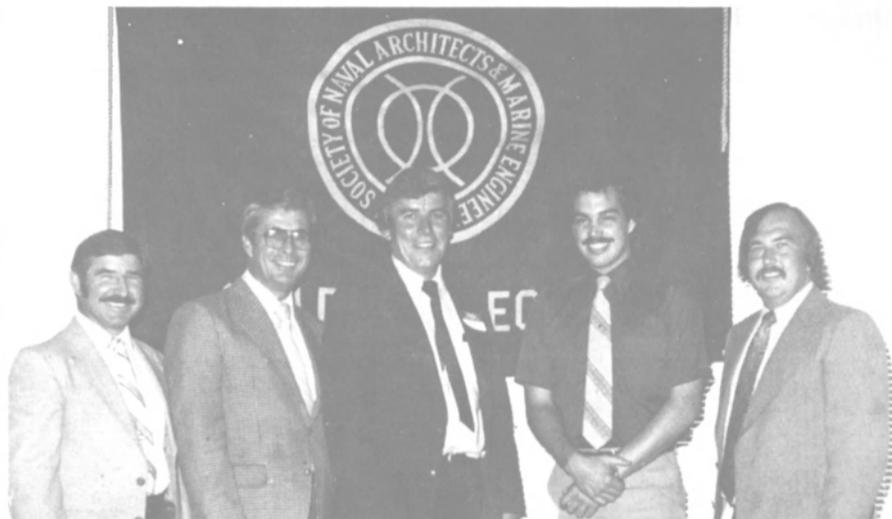
The Pelican was delivered in October, while the Eagle has been launched and will be delivered before the end of the year. The 120-foot by 46-foot by 12-foot ferries are powered by two Caterpillar D-353 engines and are designed to carry 22 vehicles, 100 passengers, and a crew of three. Lounge seating capacity is 32 persons.

The boats will be used for transportation to and from Fisher Island in Biscayne Bay.

Atlantic Marine, Inc., located at the intersection of the St. Johns River and the Intracoastal Waterway, was established in 1964. The Jacksonville area shipyard constructs steel-hulled fish-

ing boats, workboats, and specialized vessels for offshore and river use.

PELICAN/EAGLE	
Main Propulsion	(2) Caterpillar D-353
Propeller	Columbian Bronze Corp.
Shaft	J.M. Tull Metals Co. (tail) A.M. Castle (line)
Bearings	Copper Bearing Co.
Generator	Detroit Diesel
Panel	Con-Select
Engine Controls	Mathers Controls, Inc.
Steering	Wagner Hydraulic
Engine Monitors	National Marine Service
Pumps	Burks, Hydromatic, Sperry Vickers
Air Compressors	Quincy
Coatings	International Paint
Radar	ITT Decca
Electronics	VHF Radio/Raytheon



The officers and guests at the SNAME San Diego Section meeting, from left to right: Robert Wernli, author; Don MacDonough, chairman; Kurt Schmidt, vice chairman; Craig Bunge, executive committee member, and Steven Donley, secretary-treasurer.

SNAME San Diego Section Hears Paper On Unmanned Submersibles

The San Diego Section of The Society of Naval Architects and Marine Engineers began its 1981-82 program with a presentation on unmanned marine vehicles. Thirty members and guests of SNAME met at the Half Moon Inn in San Diego to hear Robert Wernli of the Naval Ocean Systems Center discuss his paper, "Experience with an Unmanned Vehicle-Based Recovery System."

The paper and presentation surveyed various types of unmanned and remotely controlled submersibles and focused on the manipulative and vehicle position-

ing features of the "Work Systems Package/Pontoon Implantation Vehicle." Through practical test programs, Mr. Wernli and his colleagues at NOSC have formed a technology base for continued development of these remotely controlled submerged vehicles. NOSC's design philosophy for these machines also was discussed. The goal of their design effort is remotely controlled systems, "that are as simple and rugged as the ocean itself."

Kockumation Names Three Agents In U.S. For Sales And Service

Kockumation AB of Malmo, Sweden, a world leader in the production and marketing of marine electronic equipment, recently announced the firm is now represented by three separate agents for coast-to-coast sales and service in the U.S.

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Uniflite Awarded Contract For Two Army Patrol Craft

Uniflite, Inc., fiberglass boat manufacturer headquartered in Bellingham, Wash., has been awarded a \$385,560 contract by the U.S. Army's Aberdeen Proving Grounds for the construction of two 42-foot fiberglass patrol boats with an option to purchase three more vessels at a later date, according to a recent announcement by James J. Doud Jr., president.

Joseph Herz Named Chief Engineer At ABS Offshore Dept.

The American Bureau of Shipping (ABS) has appointed Joseph E. Herz chief offshore engineer in the offshore installation department. Mr. Herz has had extensive experience in the structural analysis and design of merchant ships, missile structures, and special heavy machinery.

An offshore installation may be used either as a platform to support drilling and production facilities, as an electric power generation station, or as the major outlet for an undersea pipeline system. As of August 30, 1981, ABS had classed seven such installations, and 16 additional installations were under contract or were being built to ABS classification. ABS also has certified 14 such installations with 18 additional installations under contract.

Publish Zidell Catalogue Of DSI Forged Steel Valves —Copies Available

A new 16-page comprehensive catalog (202-A) of DSI forged steel valves has been published by the Valve Division of Zidell Explorations, Inc. of Portland, Ore. The product line, manufactured in Bergamo, Italy, is in strict accord with ASTM, ANSI, API, and MSS specifications.

The catalog is cross-referenced and contains size charts and detailed dimensional drawings of each type of valve. A PSI chart (pressure temperature) and material specifications for gate, globe, and check valves are also included.

The letters DSI, which are forged into each valve body, represent the name Duroseal International, an operating service of Zidell Explorations, Inc.

For a free copy of the easy-to-use catalog from Zidell,

Write 34 on Reader Service Card

MarAd Awards Grant To Develop Computerized Vessel Locator System

The Maritime Administration announced the award of a cooperative agreement of \$97,989 to the Marine Exchange of the San Francisco Bay Region as a first

step in the development and demonstration of a computerized system which would track and, in an emergency, provide the location of all ships in or scheduled to arrive or depart U.S. ports.

The management information system would support a nationwide vessel in-port locator system known as VIPLOC. By storing data on vessels scheduled to arrive and depart U.S. ports, it would aid in MarAd's decision-

making process concerning ship resource utilization at the start of a national emergency.

Thomas McCarthy and Associates of Annapolis, Md., under a subcontract to the San Francisco Marine Exchange, will design and implement the VIPLOC computer application software and documentation, including a cost-benefit analysis. The Marine Exchange of the San Francisco Bay Region will spend an additional

\$30,000 for the acquisition of the computer hardware connected with the installation of the system.

The project is expected to be completed by June 30, 1982. Following its completion, a report on the application software and documentation will be made available to the participants and members of the National Association of Marine Exchanges. Adaptation costs would be borne by the user.

ROLFITE

Advanced Combustion Technology

REPORT

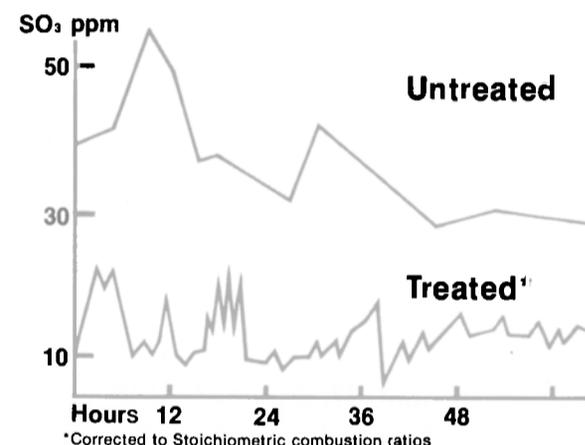
Problem

A major international oil company's VLCC was experiencing high acid levels causing inert gas systems and other gas related equipment to become inoperable and unusable.

Solution

An Admiralty Fuel Treatment Program was initiated based on data generated by a test of stack gases with a continuous SSL SO₃ Monitor.

How We Solved A VLCC's Inert Gas Safety Problem



Results

Rolfite's Admiralty MM-2 Fuel Treatment Program reduced acid levels by as much as 80% despite use of fuel with a higher sulphur content! (2.3% S in untreated test versus 3.5% S in treated test.)

Benefits

- Dangerously high acid levels were reduced in inert gas systems.
- Safety margins were substantially increased.
- Savings were effected in maintenance and replacement costs through reduction of corrosion in air heaters and economizers.
- Fuel was conserved through higher efficiency levels.

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Passenger Ship Terminal, New York City, site of ISOSO '81.

ISOSO '81

An International Symposium To Assist Ship Operators To Improve Operations

"International Symposium on Ship Operations (ISOSO '81) is a 'Catch 22' title, deliberately. There are so many factors that go into the safe, profitable and efficient operations of a ship on the high seas that every aspect must be scrutinized before every conference program is put together," stated Capt. J.C. Musser, Ship Analytics, Inc., New York,

N.Y., and general chairman for ISOSO '81.

The International Symposium on Ship Operations is an annual conference sponsored by The Maritime Association of the Port of New York, American Institute of Merchant Shipping, Council of American Flag Ship Operators, The Hydrographic Society and The Council of American Master

Mariners. It is being held at the New York City Passenger Terminal on the Hudson River from November 16 to November 19.

The 1981 conference marks a significant expansion from previous Symposiums in two directions. First, an entire maritime discipline has been added to the affair when the Hydrographic Society became an official ISOSO

sponsor. This group, while small in numbers, is large in influence in almost every other phase of maritime life.

The second significant expansion was the decision to move the Symposium to the New York City Passenger Terminal. With the additional space available there will be many more exhibits than were possible in previous years. Over

110 firms have reserved booth spaces to exhibit their marine-oriented equipment. There also is room to run concurrent conference sessions which translate into more papers. The other advantages of this location are that there are conference dining areas, cocktail bars, conferees' lounge and reserved parking on the upper level.

A further enhancement of the conference due to location is the addition of in-water exhibits and demonstrations.

Monday, November 16, has been designated International Shipping Issues Policy Day with **Philip Loree**, president, Federation of American Controlled Shipping, serving as chairman. The ISOSO International Day will address questions such as: What should U.S. maritime policy be regarding the U.S.-flag liner fleet; regarding the U.S.-flag bulk fleet, and regarding the U.S. effective control fleet. The second set of issues to be discussed are based on the questions: Is it viable in the real world to have bulk cargo sharing and is it viable in the real world to have the UNCTAD liner code. The morning session will get underway at 8:45 a.m. The afternoon session will adjourn at 4:50 p.m.

The next three days, November 17 through 19 will be given over to the presentation of papers and panel discussions. The subject matter for these three days of the Symposium was generated by requests from people within the maritime industry. For example, purchasing agents and others requested papers dealing with shipboard inventory systems, jointly supported spare-part warehousing, computerized spare-part inventory and preventive maintenance scheduling.

The papers to be presented will cover a wide variety of subjects, including navigation, communications, hydrography, training and certification, economics, fuel consumption and computers.

Panels on broad subjects will give more viewpoints a chance to be heard. One such panel will deal with ship board computers, another will examine the changing role of both officers and men on board seagoing vessels, and yet another will deal with new safety requirements.

There will be 19 separate conference sessions. The final sessions of each of the three days will be used for a significant in-water demonstration that relates to a final paper presented for that day.

Papers

The following listing is a partial list of papers by panels to be presented:

Panel on Human Relations within the Industry.

"Human Factors Aboard Ships

—Not Quite the Mystery It Was" by **John S. Gardenier**, Commandant (G-DMT/54) USCG, and **Dr. Thomas Hammel**, Ship Analytics, Inc.

"The changing Role of the Ship's Officer" by **William T. McMullen**, Department of Nautical Science, U.S. Merchant Marine Academy.

"The Master as Manager" by **Per Sundby**, Texaco Norway A/S.

"A Survey of Shipboard Management Systems in Relation to Maritime Labor and the Maritime Environment" by **Dr. Henry F. Trutneff**, International Organization of Masters, Mates and Pilots.

"The Human Element — Sea-

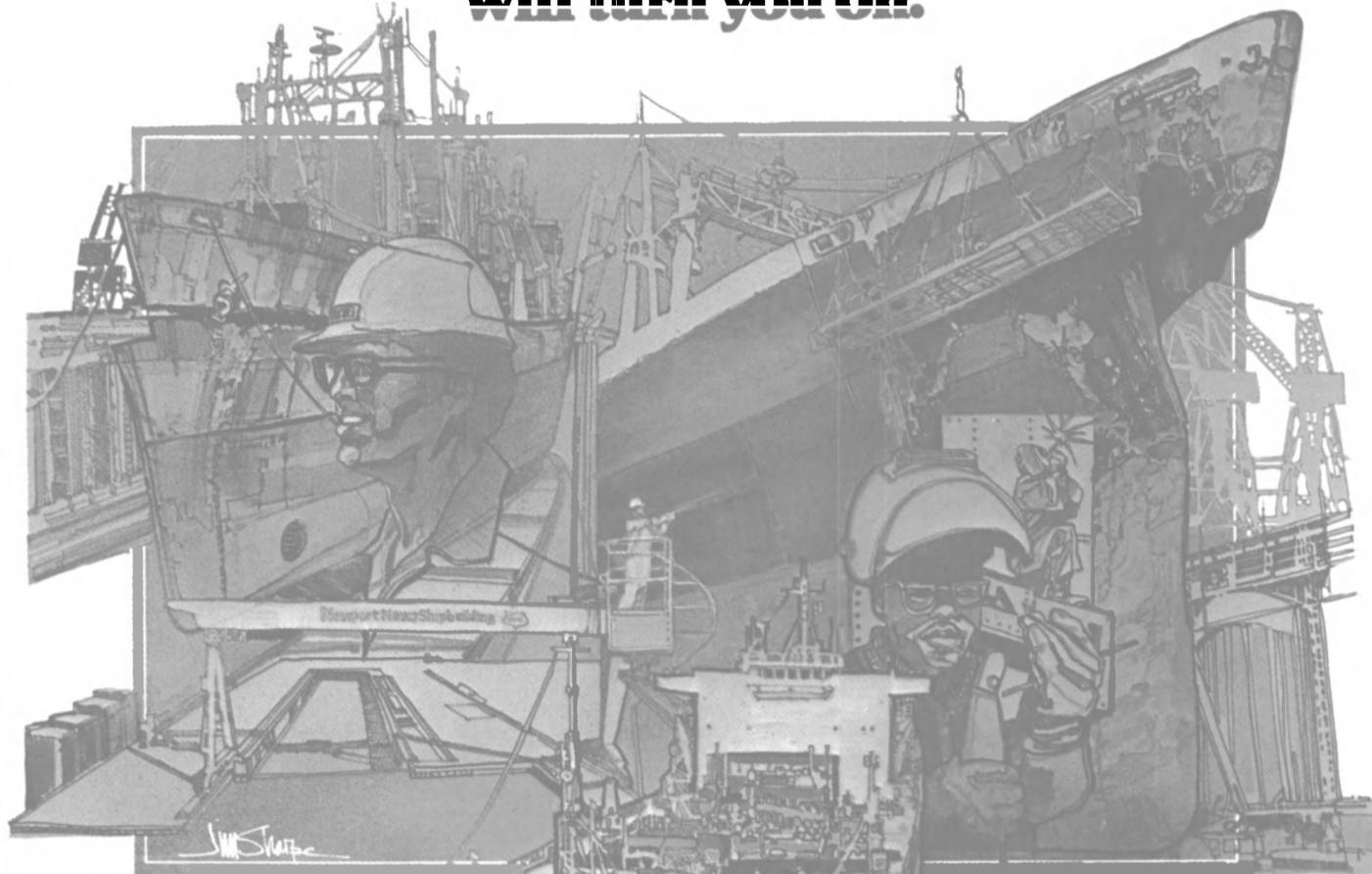
farer's Rights" by **Paul D. Chapman**, Seamen's Church Institute.

Panel on Training with Emphasis on Simulators.

"The Role and Responsibility of Industry and Organized Labor in Training and Education (A View from Overseas)" by **K.C.**

(continued on page 94)

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dence on outside sources contributes to our excellent record for quick turnaround and on-time delivery.

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that turn up during planned maintenance and still deliver the ship in time for its scheduled cruises.

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ISOSO '81

(continued from page 93)

Reid, The Alexandria Towing Co. (London) Ltd., and **William Rich**, International Organization of Masters, Mates and Pilots.

"A Modern Engine Room Simulation Concept" by **O.R. Bjoeness**, Norcontrol, Norway.

"The Application of Bridge Simulation for the Training of Tugboat Operations: A Developmental Program" by **Dr. K.E. Williams**, D.C. **Buchanan** and **Capt. R. DiNapoli**, Ship Analytics, Inc.

"Simulator Training and Marine Engineers" by **Capt. Douglas A. Hard**, Marine Safety International.

"Marine Simulation on the Job Training Substitute" by **Max Carpenter**, Maritime Institute of Technology & Graduate Studies.

"Training of Personnel for Western River Tugboats" by **Thomas Tooker**, National River Academy.

"Qualifications and Training for Workboat Personnel" by **V.J. Gi-**

nelloni, Louisiana Petroleum Institute.

Panel on Economics & Logistics of Ship Supply & Purchasing.

"Profit Achievement by Preventive Maintenance" by **Richard J. Deely**, Marine Maintenance Systems.

"STIMS — A Shipboard Inventory Management System" by **James H. Keyte**, Sun Transport, Inc.

Panel on Navigation and Operations.

"Ocean Current Navigation Study Completed" by **James W. Feeney**, Sipcan Corporation.

"World-Wide Navigational Warning System" by **Capt. E. Ayres**, USN (ret.) and **John Lyall**, Defense Mapping Agency.

"The Mariners Requirements for Marine Environmental Services" by **Rear Adm. E.D. Stanley Jr.**, The Sea Use Council.

"A Review of Current USCG Regulations on Navigation and Communication Equipment" by **R.E. Negron**, Electro-Nav, Inc.

"Computers and Communications on Ships" by **Charles S. Carney**, Nav-Com, Inc.

"Experience with Harbor and Harbor Entrance Loran-C Guidance Equipment" by **Comdr. J.F. Roeber**, USCG.

Panel on Communications.

"INMARSAT Preparing To Commence Operation" by **Guntis Berzins**, INMARSAT.

"Challenges and Responses for INMARSAT System — Users Viewpoints on Telecommunications, Navigation and Distress Applications" by **Lawrence Kilty**, L.R. Kilty & Company.

"SATCOM—A Tool for Saving Operational Cost" by **Gunnar Kris Gangsaas**, Electro-Nav, Inc.

Panel on Hydrography.

"Status of Navigational Charts World Wide" by **Commodore A.H. Cooper**, RAN (ret.), Bureau Hydrographique International.

"Hydrography in the Management of the Exclusive Economic Zone" by **Tom McCulloch**, Hydrographic Commission Federation, International des Geometres.

"NOS Service and Support Ship Operations" by **Dr. Thomas E. Pyle**, National Ocean Survey.

"Research and Development Efforts in Remotely Sensed Hydrographic Data Collection" by **Lt. Comdr. Wayne S. Shiver**, USN, Defense Mapping Agency, Department of Defense.

"All Weather Precise Piloting Options for U.S. Ports" by **J.T. Montonye**, USCG, and **E.F. Grenaker**.

Panel on Safety.

"Revision of SOLAS Chapter (continued on page 96)

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Find out more about the ESZ-8000. Write or call Navidyne Corporation, 11824 Fishing Point Drive, Newport News, Virginia 23606 USA.

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NAVIDYNE



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ISOSO '81

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III — Lifesaving” by Capt. W.A. Mayberry, Offshore Marine Service Association.

“Safety: Tanker Explosions” by Jeremy M.S. Smith, Liberian Shipowners' Council Ltd.

“Contingency Planning for

Maritime Accidents” by W.F. Searle Jr., Searle Consortium, Ltd.

Panel on Maintenance and Repair.

“Electronic Analyzers and Diesel Engines” by R.R. Raymer, Cooper Energy Services.

“Annual Contracts—A Way to Decrease and Control Ship Main-

tenance Costs” by Frederick A. Ganter, Norfolk Shipbuilding & Drydock Corporation.

“A New Era of Digital Monitoring of Machinery Equipment” by Peter Kempers, Electro-Nav, Inc.

Panel on Problems of Propulsion.

“Variations in Fuel Costs as

a Function of at Sea Weather Factors” by Austin L. Dooley, Ocean Routes, Inc.

“Results of Research on the Use of Residual Fuel in Diesel Engines” by S. Sprague, Ocean Fleets, Ltd.

In summary, ISOSO '81 provides the true, industry-wide representation of subject material by qualified persons within the industry. The Symposium will provide three days of exposure to innovations, new ideas, new methods and refinements of old ones.

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\$C11-Million Naval Order To Burrard Yarrows Corp.

Burrard Yarrows Corporation of Vancouver, Canada's largest ship repairer, has won an 11-million Canadian-dollar contract to carry out a modernization refit on the frigate HMCS Mackenzie.

This is the first time a major refit of a Canadian warship has been entrusted to a private dockyard on Canada's west coast.

The HMCS Mackenzie was lead ship in a class of four frigates variously commissioned in 1961 and 1962. The then Burrard Dry Dock Company Limited, now an integral part of Burrard Yarrows Corporation, built the HMCS Yukon, a sister ship to the HMCS Mackenzie.

Jean-Jacques Blais, Federal Minister of Supply and Services for the Government of Canada,

who signed the contract, indicated that there is a good possibility that four additional contracts for similar work and of similar value will be placed with civilian yards on the west coast over the next five years.

The Mackenzie refit, which is being undertaken by Burrard Yarrows Victoria division, is scheduled for completion early in December 1981.



HERE'S A DRAMATIC WAY TO PROVE THAT FERROUS CATALYST CAN LOWER PROPULSION PLANT OPERATING COSTS ABOARD YOUR VESSELS.

New computer software program measures plant efficiency before and after catalyst use.

- Do fuel oil additives work?
- Will they lower operating costs and save fuel?
- Are they cost effective?

Ferrous Corporation has developed a computer software program that can tell you exactly how much a specific fuel additive changes the efficiency of your marine boiler or diesel.

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software program evaluates the data and applies a number of correcting factors to determine changes in plant efficiency and trends in performance.

Before and after tests show significant results. Once the data has been analyzed, Ferrous prepares a report interpreting the results. Changes

in propulsion plant efficiency are shown in easy to understand graphs.

To date, reports show efficiency improvements ranging from 4% to 8%. This means each gallon of Ferrous Catalyst saves three to six barrels of fuel.

We can show you the proof! Sure we'd like to

sell you our product. But first, we want you to be convinced that Ferrous Catalyst works. If you're interested in putting your vessels to the test, or simply learning more about Ferrous Catalyst, fill out the coupon below and send it to Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009. Phone 206/454-6320.

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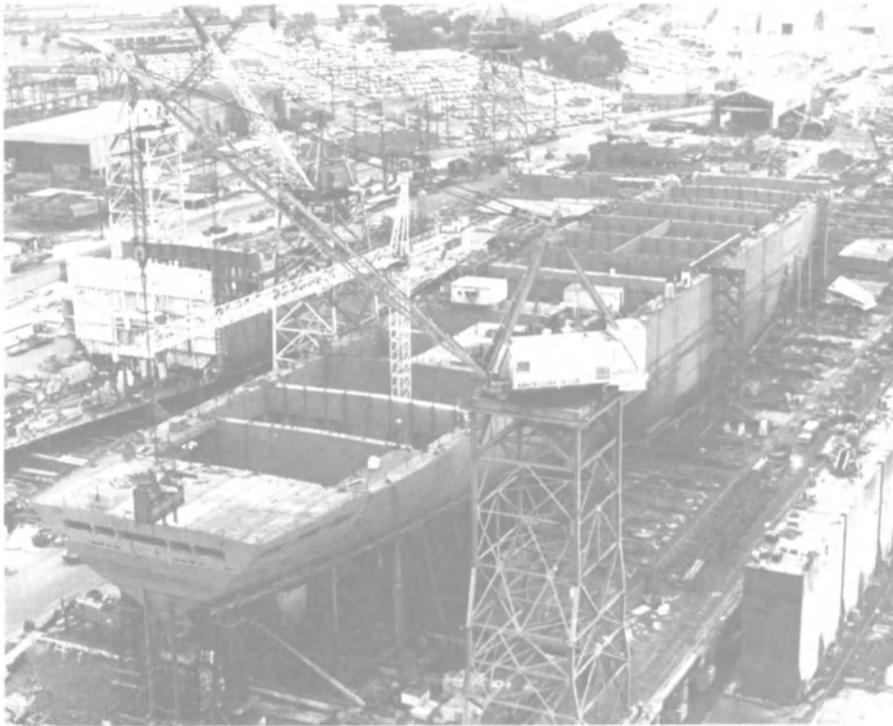
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Largest Containership To Be Built In U.S. Is Named President Lincoln



The largest U.S.-built containership President Lincoln under construction at Avondale Shipyards, New Orleans, for American President Lines.

American President Lines (APL), Oakland, Calif., has announced that the first of its three new containerships, the largest ever built in the U.S. and the first to be diesel propelled, will be named the President Lincoln. The ship will be christened and launched on December 19, 1981, at Avondale Shipyards, New Orleans, La., according to W.B. Seaton, APL's president.

The other two containerships will be named the President Washington and the President Monroe.

Each ship will be 860 feet long and will have the capacity to carry the equivalent of 2,500 twenty-foot containers, including 400 forty-foot refrigerated containers.

The ships will be powered by large, fuel efficient Sulzer low-speed marine diesel engines assembled in the U.S. The Sulzer engines were built by Allis-Chalmers Corp., Milwaukee, Wis.

APL is a wholly owned subsidiary of San Francisco-based Natomas Company, the energy, transportation, and real estate concern.

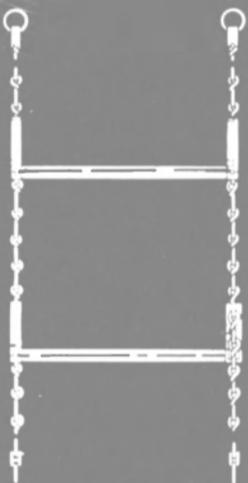
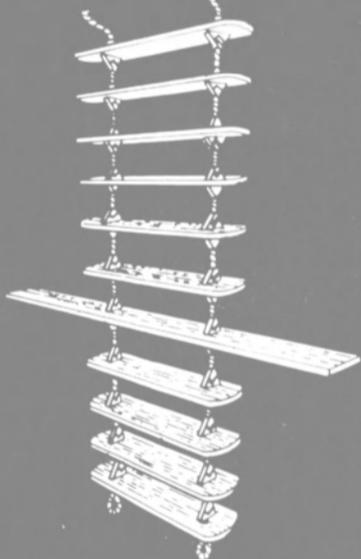
Ore/Oil Carrier Purchased By Marine Transport Lines From Italian Company

Marine Transport Lines, Inc., New York, N.Y., announced recently that it had purchased from Nereide SpA. of Naples, Italy, a 134,000-dwt ore/oil carrier for \$13 million. The vessel, to be renamed Oswego Prima, incorporates the latest safety and anti-pollution systems including inert gas and crude oil washing systems.

The ship is specially designed for the transportation of crude petroleum in bulk as well as heavy cargoes such as iron ore. The vessel has been delivered under a long term time charter to Achille Lauro Lines of Italy.

Marine Transport Lines, a subsidiary of GATX Corporation, Chicago, charters and operates oceangoing ships primarily on a medium and long-term basis. Including this acquisition, it owns 17 oceangoing vessels and operates an additional 19 vessels for others.

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Award Dillingham Shipyard \$3-Million Contract For USS Beaufort Overhaul

Dillingham Shipyard, a division of Dillingham Corporation, Honolulu, Hawaii, was awarded a \$3,247,700 firm fixed price contract for the scheduled topside overhaul of the USS Beaufort (ATS 2). The Supervisor of Shipbuilding, Conversion and Repair, Honolulu, Hawaii, is the contracting activity. (N65202-70-C-0001)

American Iron And Steel Institute Publishes Text On Corrosion Protection

American Iron and Steel Institute, Washington, D.C., recently published a new text, "Handbook of Corrosion Protection for Steel Pile Structures in Marine Environments."

Authored by corrosion engineers and steel pile specialists, the 260-page book provides an in-depth study of the problems and remedies associated with corrosion of steel piles. Discussions include damage assessment, rehabilitation, corrosion control, and cost analysis.

Ten chapters in the new book cover corrosion fundamentals, economics of corrosion control, design and fabrication practices, steel selection, jacketing and coatings, anodic and cathodic protection, and combination methods for corrosion control. Four example problems are explained in detail.

Appendices include properties and dimensions of H-piles, sheet piling, and pipe piles; ASTM Standard Specifications for steels used in pile structures; corrosion testing and steel behavior in marine environments; seawater properties; and a glossary of corrosion terms.

The handbook is available from American Iron and Steel Institute, 1000 16th Street, N.W., Washington, D.C. 20036. Price: \$9.

EPSCO And Datamarine Sign \$1.6M OEM Agreement For Loran-C Receivers

EPSCO, Incorporated of Westwood, Mass., and Datamarine International, Inc. of Pocasset, recently announced the signing of an O.E.M. agreement for \$1.6 million whereby Datamarine will purchase from EPSCO microprocessor-based loran C navigation receivers, manufactured to their specifications, over a 12-month period.

Mr. Coffin, president and chief executive officer of EPSCO, stated he is extremely pleased with the signing of the agreement as Datamarine is a leading domestic manufacturer of marine instruments which are all known for their high quality and reliability.

This O.E.M. agreement provides

Datamarine with a highly reliable microprocessor-based loran C receiver which has state-of-the-art design at a cost effective price.

With the signing of the agreement, EPSCO's net sales backlog now exceed \$7.5 million.

EPSCO, Inc. designs and manufactures marine navigation equipment, avionic systems, microwave instrumentation, and special test and simulation equipment for military and commercial markets.

Hydranautics Brochure Describes Shipyard Transfer Systems

Shipyard Systems by Hydranautics, an eight-page, four-color illustrated brochure, describes the company's heavy-load moving systems for shipbuilding and repair. Systems described include ship lift systems, wheeled translation systems, skidding translation systems, drydock transfer

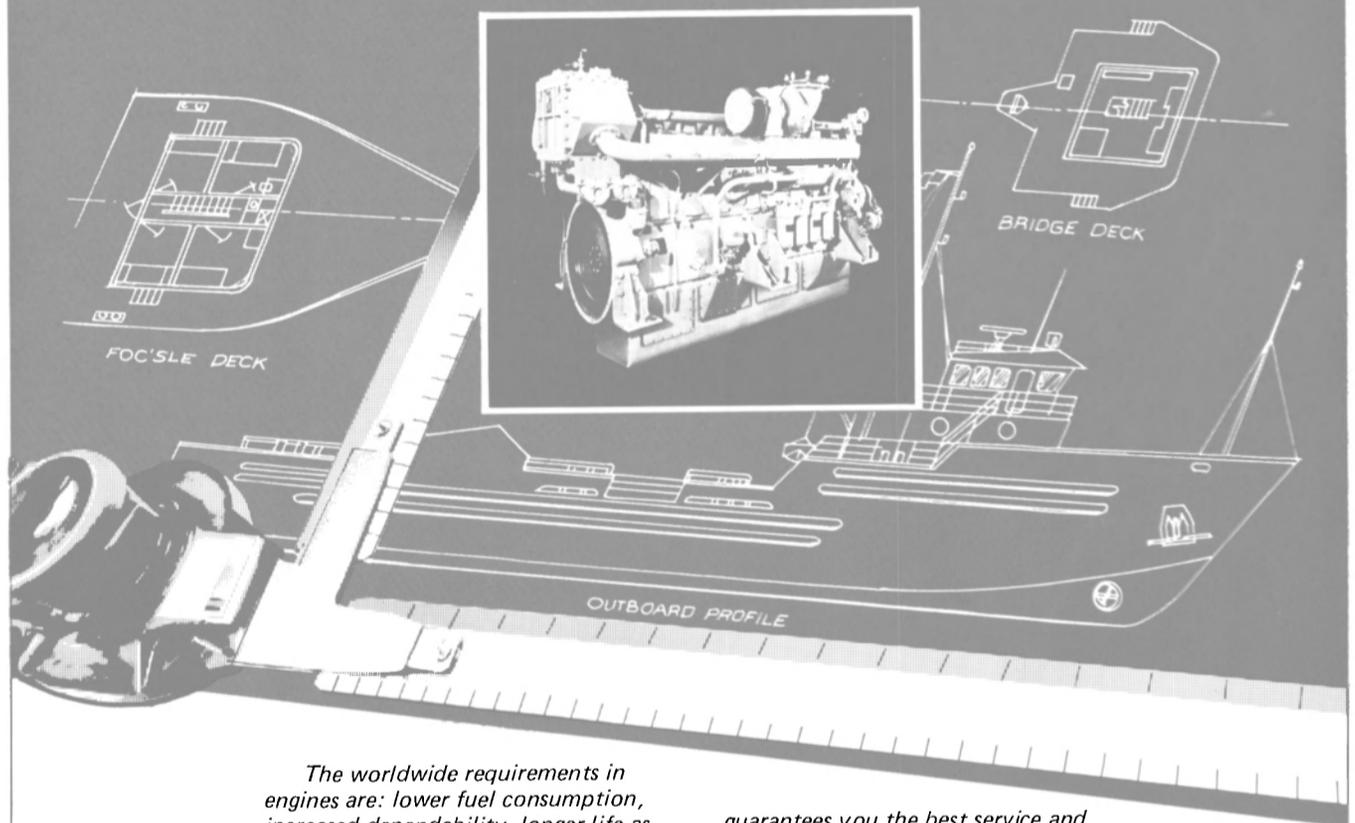
systems, and walking translation systems.

The brochure describes how Hydranautics products operate to drydock and launch ships from an elevator, translate ships or ship sections throughout the yard, extrude ships under construction down shipways, and transfer ships into and out of floating drydocks.

For a free copy of the Hydranautics brochure,

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Blenkhorn Named A VP At Bath Iron Works

John F. Sullivan Jr., chairman and chief executive officer of Bath Iron Works, Bath, Maine, announced the appointment of James M. Blenkhorn Jr. as vice president of marketing.

Mr. Blenkhorn is rejoining Bath Iron Works after leaving in Feb-

ruary 1979 to serve first as group vice president of Sun Shipbuilding Corporation, Chester, Pa., and then as president of Equitable Shipyards, Inc., New Orleans, La.

He originally joined BIW in August 1969 as ship superintendent for construction of three West German destroyers. He then held a series of executive positions, concluding as manager of com-

mercial new construction and Navy overhaul.

A graduate of the Maine Maritime Academy and the Naval Post Graduate School, he sailed as a licensed engineer in the U.S. merchant marine. He then served ten years in the U.S. Navy as an engineering officer in destroyers and cruisers, and on command staffs. He currently is a captain in the U.S. Navy Reserve.

Blume To Install Elinca System On 4 Sedco Rigs

Blume Worldwide Services, Scarsdale, N.Y., have been awarded contracts for Elinca marine growth and corrosion control systems to be installed on four semi-submersible drilling rigs under construction for Sedco Inc., Dallas, Texas. The first is for the SEDCO 710 under construction at Mitsui Shipbuilding, Shiba, Japan, the others are for the SEDCO 711, SEDCO 712 and SEDCO 714 at Hyundai Heavy Industries of Korea.

The Elinca System is designed to control marine growth and corrosion in the rigs' main engine cooling systems and ballast systems. Developed and manufactured in the U.K., Elinca uses specially alloyed copper (anti-foulant) and aluminum (flocculant) anodes installed in the seawater intake lines. Slow, controlled dissolution of the anodes results in the formation of a cupro-aluminum floc which is distributed throughout the system by the flow of treated water. This results in deposition of the protective cupro-aluminum film on all surfaces, thus giving complete marine growth and corrosion protection throughout the rig's seawater service systems.

To obtain details and free literature on the Elinca Anti-Fouling System,

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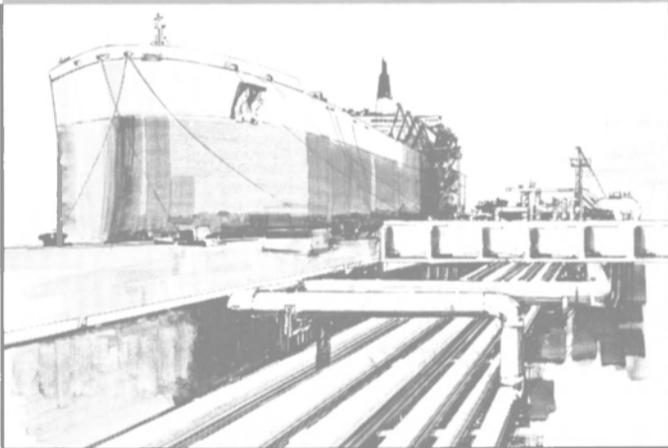
Navy Extends Use Of MARISAT Satellite Service An Additional Year

COMSAT General Corporation announced recently that the U.S. Navy has extended its contract for use of each of the three satellites in the MARISAT System for an additional year. The renewal provides an option for the following year as well. The provision of this additional service is valued at about \$16 million per year.

The MARISAT System began providing communications service to the Navy in the Atlantic region in March 1976, in the Pacific region in June 1976, and in the Indian region in January 1977. The Navy leases UHF capacity in all three MARISAT satellites for fleet communications between its own fixed and mobile terminals.

The MARISAT System, developed and operated by COMSAT General, is the world's first maritime satellite communications system. Each of the three MARISAT satellites operates at three different frequencies: UHF for Navy service; and L-Band and C-Band for the commercial shipping and offshore industries. Services to the international maritime market include telephone, telex, facsimile, and data communications.

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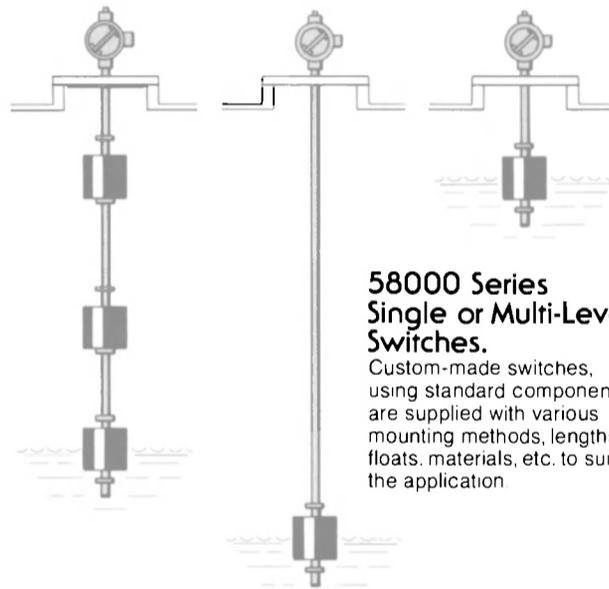


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**Andrew A. Sallean Joins
Bretagne ACB Corporation
As Vice President**



Andrew A. Sallean

Andrew A. Sallean has joined Bretagne ACB Corporation, New Orleans, La., as vice president of the newly formed department of naval architecture.

ACB is a marine equipment design and manufacturing company specializing in articulated and integrated tug/barge hydraulic connection systems. The department offers complete vessel design support for tug/barge projects as well as general naval architectural services to the industry. ACB connection systems are ABS and USCG certified and have been installed on 12 tug/barges operating worldwide, including a recently delivered 15,000-hp, 50,000-dwt tanker unit.

Prior to joining ACB, Mr. Sallean was vice president of Breit and Garcia, Inc., where he participated in a wide variety of naval architectural and marine engineering projects.

**SD-14 Contract Awarded
To Smith's Dock Co., U.K.**

Two SD-14 general cargo ships have been ordered from Smith's Dock Co., Middlesbrough, England, a subsidiary of British Shipbuilding, by Carrion Shipping, Hong Kong. The order is worth about \$28 million. The anticipated delivery date is in the second half of 1982.

**Navy Awards EAC A
Contract To Inspect
Carrier Fleet Equipment**

Energy Audit Corporation, Montclair, N.J., an infrared scanning inspection company, has been awarded a contract by the U.S. Navy to perform infrared electrical and mechanical equipment inspections on all of the aircraft carriers in the United States fleet.

Steven L. Miller, director of marketing, reports that this is the first time in the history of the Department of the Navy that an entire fleet inspection contract has been awarded. "EAC personnel have performed infrared inspections for over five years, and we are proud that the Navy has selected EAC for this vital fire-prevention and preventive maintenance contract."

EAC engineers board an ocean-going vessel and using highly so-

phisticated ACA Thermovision infrared cameras, are able to locate overheating conditions in all major electrical and mechanical equipment, including switch boards, power and distribution panels, buses, motor controllers and motors.

Overheating is the first indication of a loose or deteriorated electrical connection, poorly lubricated motor bearing, defective motor winding or overloaded circuit. Using the infrared camera to measure the temperature of

the "hot spot" and to take an instant infrared picture, EAC engineers can accurately predict an impending electrical fire or failure.

Infrared inspections have successfully been used on oil tankers, containerhips and all other types of conventional and nuclear-powered vessels. It is a proven maintenance and fire safety procedure.

For further information on EAC's services,

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**\$3.2-Million Navy Order
For Plating Facility Work
At Charleston Yard**

J.N. Futia Company, Inc., Albany, N.Y., has been awarded a \$3,232,000 fixed price contract for alterations to the plating facility at the Naval Shipyard, Charleston, S.C., following competition in which four bids were received. The Naval Facilities Engineering Command, Southern Division, is the contracting agency.

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Marconi Marine Awarded Eight-Ship Communications Equipment Contract

The Marconi International Marine Company Ltd., A GEC-Marconi Electronics company of Chelmsford, England, has received orders for a range of communications equipment to be installed on eight vessels being

built in Gdansk, Poland, for the Pakistan National Shipping Corporation.

The vessels — Nawabshah, Khaipur, Sibi, Zhab, Lasbela, Hazara, Gujrat, and Jhang—are general cargo ships of 15,000 dwt.

Each ship is to be fitted by Marconi Marine with a main radio station comprising a Conqueror HS main receiver, Salvor 4 reserve transmitter, Apollo

main receiver, and Sentinel reserve receiver. Further main station equipment includes Autokey 2, Lodestar IIID direction finder, Argonaut SS and Nautilus VHF radiotelephones, Forecaster K weather facsimile equipment, and Survivor II lifeboat sets. The watchkeeping receivers are Life-guard 3 on 500 kHz and Warden 4 on 2,182 kHz respectively. A

Console 2, to contain much of this equipment, will also be provided.

Marconi Marine will also supply each ship with a Seahorse echosounder and two transducers. Ancillary equipment includes a telephone terminal unit and a range of mast transmitter aerials and receiver whips.

Gems' Bent Stem Level Switches Available For Tank Side Mounting

Gems Sensors Division of Transamerica Delaval, Plainville, Conn., can now offer level switches with an almost unlimited range of stem mounting configurations.

These versatile switches are provided as both single or multi-station with either threaded or flanged connections. They provide high, low, or intermediate level alarm with a single mounting. In addition to the many unusual stem shapes, they can be supplied with 90° elbows, with junction boxes, with either Buna or stainless-steel floats, and with SPST or SPDT switch elements.

All the switches, regardless of stem configuration, incorporate the same hermetically sealed reed switch and magnetic float design that has provided repeatability and dependability for more than 25 years.

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Joint Venture Formed To Market Shipboard Computers For Loading

A joint venture to supply individually programmed shipboard desk-top computers was announced recently by the firms of Anchor Marine of Liverpool and Marine Venture Ltd. of London, U.K. Under the arrangement, Anchor Marine will write programs and arrange the supply of hardware, while Marine Ventures will market the product worldwide.

The French classification society Bureau Veritas requires loading calculators on all bulk ships under its classification. Anchor Marine officials expect that ultimately such equipment will be standard on most vessels.

Marine Ventures Ltd. are a London-based marketing company with agents in the principal maritime countries and who specialize in antipollution equipment for ships including, in addition to loading computers, oily water separators, closed-tank gauging equipment, inert gas systems, and marine sanitation devices.

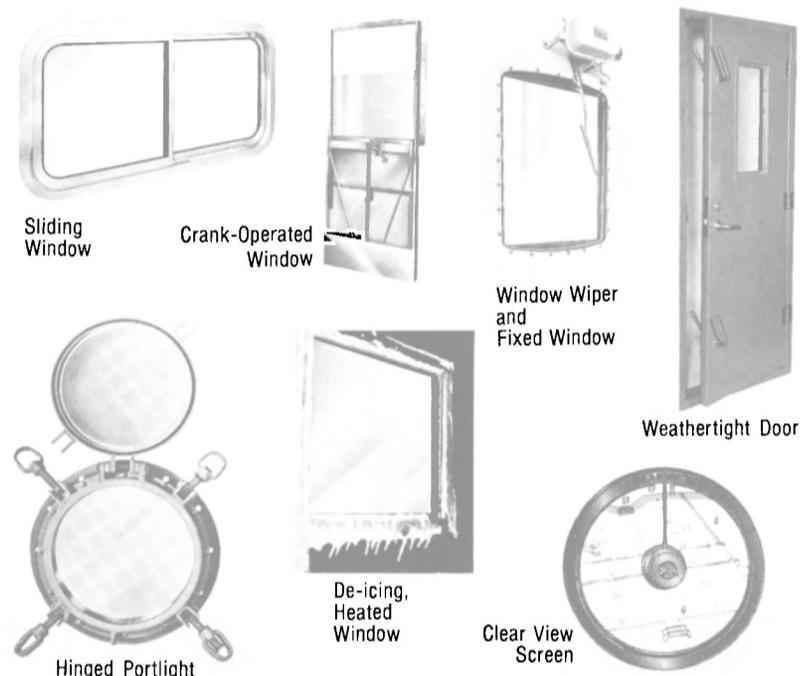
Marine Ventures Ltd. is represented in the United States by Schnitzer-Levin Marine Company of South San Francisco, Calif.

For full information on any of the above equipment,

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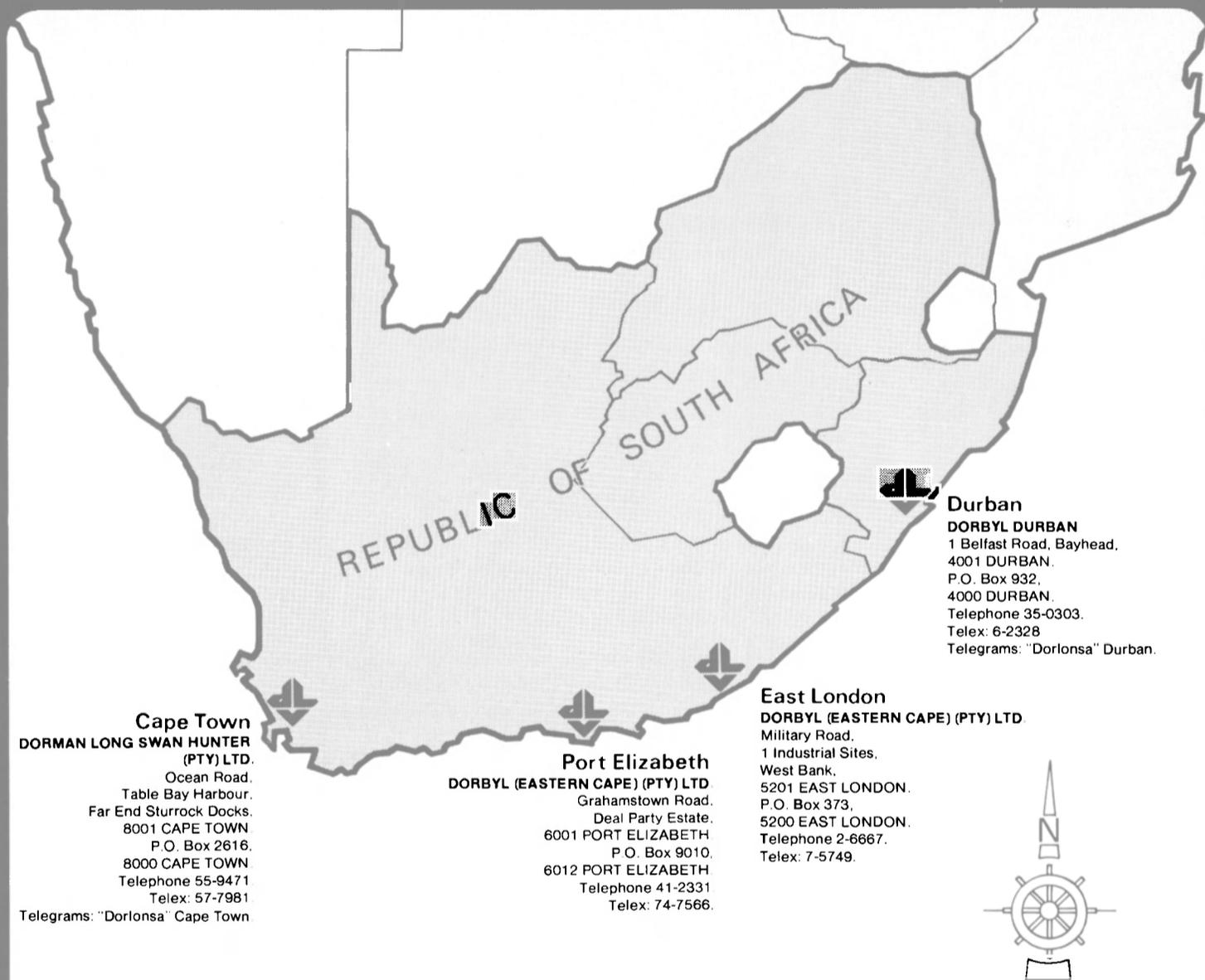
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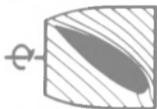
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Commander Clark Graham, USN, Flagship Section chairman (left) introduced Rear Adm. John D. Beecher, USN, who delivered a paper on the "Reactivation of Battleships" to a recent meeting of the ASNE section.

ASNE Flagship Section Hears Admiral Beecher On Battleship Reactivation

The members of the Flagship Section of the American Society of Naval Engineers gathered at the Naval Surface Weapons Center, Dahlgren, Va., for the first meeting of the 1981-82 season to hear a paper on "Reactivation of the Battleships," given by Rear Adm. John D. Beecher, USN, NAVSEA's Deputy Commander for Surface Combatant Ships.

The afternoon session also included a historical look at the establishment of NSWC's facilities at Dahlgren from their beginning in 1918, presented by Capt. L.E. Ackart, USN, NSWC Deputy Commander, and a station bus tour of the laboratories, ranges, experimental sites, and housing and administrative areas. The highlight of this tour was the demonstration firing of the main range's 16-inch gun.

Admiral Beecher's paper started with a look at the various classes of battleships—including the one on which he spent a midshipman cruise—and moved to the steps being taken by the U.S. Navy to bring vessels from its mothballed battleship fleet out of retirement. The first battleship to be reactivated, the USS New Jersey (BB-62), was towed in July from its retirement berth at the inactive Ship Maintenance Facility at Bremerton, Wash., to the Long Beach Naval Shipyard. There it will begin a modernization and reactivation process at an estimated cost of \$326 million, about the price of a Perry class (FFG-7) frigate.

Admiral Beecher said present world conditions—a dearth of U.S. carrier assets and a major increase in surface Navy assets of

our potential enemies—justify the return of modernized battleships. The return of the New Jersey and planned updates for other Iowa-class battleships is viewed as the most cost effective way to provide an early signifi-

cant increase in the capability of the U.S. Navy.

The New Jersey is expected to return to the fleet in early 1983, much sooner than it would take to build a new warship from the keel up.

Philadelphia Resins Announces Expansion At Montgomeryville Plant

As the first stage of a major expansion, Philadelphia Resins Corporation, Montgomeryville, Pa., is adding 1,100 square meters (12,000 square feet) to one of its two modern manufacturing and production plants.

"This immediate expansion," David H. Kollock, president of the company stated, "will allow us to transfer some warehousing operations and all finished-product inventories from the Resin Division plant. We need more space in that production facility," he added, "to satisfy present and growing requirements for our broad range of marine and industrial resin systems."

By expanding the Phillystran Division plant, the company will be able to install a new rope-closing machine to produce large-diameter nonmetallic ropes for heavy-duty marine applications. It also is capable of handling very long lengths of flexible, non-metallic rope, regardless of diameter. The inherent versatility will make the large rope-closing machine a natural complement to Philadelphia Resins' existing equipment for high-speed manufacturing of electrically transparent tower guys, radar and antenna mast stays, and various small diameter working ropes and cables.

The second phase of the expansion program is also underway with the recent purchase of five acres of land, located immediately behind the company's central office facilities. Early in 1982, a new plant with approximately 3,650 square meters (40,000 square feet) of working space will further expand the company's production operations.

MarAd Increases Title XI Guarantee For CATUG

The Maritime Administration has recently increased its Title XI loan guarantee commitment on an integrated CATUG tug/barge tanker unit owned by the First Pennsylvania Bank from \$52,292,000 to \$60,753,000.

The increase resulted from a \$9,669,000 increase in the actual cost of the vessel between the time of MarAd's initial commitment and the closing date of the guarantee agreement. Federal loan financing guarantees on this vessel cover up to 87½ percent of its \$69,432,000 cost. The CATUG is chartered and operated by Artemis Marine Co., L.P.

Curacao Drydock Names Donald Volger U.S., Canadian Rep.



Donald W. Volger

Richard R. Klattenberg, vice president, CD (USA) announced recently that Donald W. Volger has joined the firm to represent Curacao Drydock Company throughout the U.S. and Canada. Mr. Volger was previously a ship sale and purchase broker with A.L. Burbank & Co., Ltd.

Curacao Drydock Co. has fully comprehensive facilities to perform conversions, repairs, and drydocking of vessels up to about 150,000 dwt.

Robertson Offers Remote Stations For Autopilot—Literature Available

The Robertson AP-30U Autopilot is now available with a second station for flybridge or other remote control station. Unlike other remote units, the AP-30U remote can operate fully independently of the main autopilot in case of trouble, and acts as a valuable backup, particularly important for workboats and fishing vessels that depend on their autopilots. This rugged unit is built in Norway to withstand the rigors of North Sea service, and is designed for all workboats and fishing vessels up to 80 feet long. It is available from Kongsberg North America, Inc., Leonia, N.J.

For further information and free literature on the AP-30U remote,

Write 51 on Reader Service Card

PRI Names Lubin Marine Transportation Manager

Jay F. Lubin has been named director of marine transportation for Pacific Resources, Limited, a subsidiary of Pacific Resources, Inc., Honolulu, Hawaii.

Mr. Lubin previously served with the U.S. Department of Energy, Washington, D.C., with the strategic petroleum reserve program as manager of crude oil allocations.



During the meeting, ASNE members toured the facilities of the Naval Surface Weapons Center at Dahlgren, Va., and witnessed a test firing of a 16-inch gun, shown being loaded.

**Norcontrol Offers New
Anti-Collision System
—Literature Available**

Norcontrol has introduced Data-Bridge 7, a new advanced collision avoidance system which emphasizes operator/system communication while complying with re-

cent demands from IMCO and the U.S. Coast Guard.

Norcontrol reports the new system includes several features specifically designed to aid the operator. Audio and visual warnings occur whenever a target exceeds "closest point of approach" and "time to closest point of approach" — limits selected by the

operator. An enhanced luminosity of the system's daylight radar display provides greater visibility and makes the hood unnecessary. The daylight radar displays course-up, north-up or head-up modes on a 16-inch PPI screen.

DataBridge 7 includes features of its predecessor DB-4, such as constant monitoring of targets

during own ship maneuvers. Its navigational sub-system tracks fixed targets, displays fairway lines, and performs dead-reckoning and drift calculations. The new system is microprocessor-controlled, contains no moving parts, and uses the latest self-checking technology. Continuous system monitoring of main signals and built-in debugging programs provide high reliability.

For complete free literature on the new DataBridge 7,

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**Ted Hansford Named
Si-Tex General Manager**



Ted Hansford

Ted Hansford has been named general manager of Si-Tex Marine Electronics, Clearwater, Fla. He succeeds Preseley Taylor who has retired. Mr. Hansford was previously marketing manager for Si-Tex's line of marine radars, depth recorders, Loran C receivers, VHF radios and ADF equipment.

Prior to joining Si-Tex he was sales manager of Seatron Marine Electronics, Philadelphia, Pa.

Si-Tex is a division of Smiths Industries, Inc.

**Simrad Offers New
Bottom Expansion Unit
For Skipper Fish Finder**

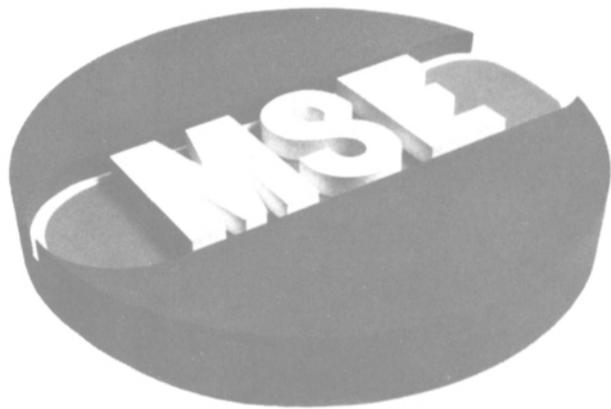
Simrad now offers a bottom expansion unit that is specially designed for bottom fishing. The unit easily fits into the cabinet of the Skipper 802 fish finder/recorder, and can therefore be retrofitted to existing 802s. The 802 bottom expansion unit enables the skipper to see fish details close to, or just above the bottom that would normally be difficult to pick out even with the sharp detail provided by the Skipper 802 sounder used on its own.

The expanded area can be chosen from either a 1 1/4, 2 1/2, or 5 fathoms from the bottom and up. This area can then be presented in three different modes according to where the recording of the bottom contour will appear on the echo-gram, high up or low down.

The Skipper 802 sounder is already fitted with cable and a plug to take the bottom expansion unit. Samples of true echo-grams showing the expansion can be sent upon request.

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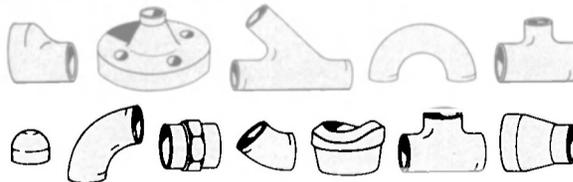
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UPSCO Names Boczar VP Of Operations

The appointment of **Robert H. Boczar** as vice president of operations has been announced by the Upper Peninsula Shipbuilding Co. (UPSCO). The shipyard, located in Ontonagon, Mich., is a manufacturer of tugs, barges, dry-docks and industrial steel fabrication work.



Robert H. Boczar

Formerly, he was manager of manufacturing/methods engineering and then manager of manufacturing services at Beloit Corporation in their Paper Machinery Division. Mr. Boczar is currently responsible for the overall supervision and coordination of UPSCO's operations. His extensive shipyard experiences began as a boilermaker apprentice and loftsmen at Bethlehem Steel's Fore River Shipyard and culminated with his appointments as general superintendent-steel trades and plant manager of General Dynamics Corporation/Electric Boat Division.

Tenfjord Steering Gear Installed On New Corps Of Engineers Dredge

Marine Technical Associates, Little Falls, N.J., recently announced that Tenfjord rotary hydraulic steering gear has been installed on the medium class U.S. Army Corps of Engineers dredge under construction at Bath (Maine) Iron Works.

MTA sells and services Tenfjord equipment. For further information on Tenfjord's line of steering gear,

Write 60 on Reader Service Card

COMSAT To Hold Marine Satellite Service Seminar In New York, December 1

COMSAT will conduct a one-day seminar for maritime industry personnel on December 1 in New York City to provide current information on new developments in maritime satellite communications.

Companies or organizations who wish to send representatives should notify in writing **Hale Montgomery, COMSAT Maritime Services, 950 L'Enfant Plaza, S.W., Washington, D.C. 20024.** There is no charge for attendance; reservations should be received by November 18.

The seminar will be held at the

Whitehall Club, 17 Battery Place, on Tuesday, December 1, from 9 a.m. to 4 p.m. This is the first such COMSAT seminar to be held in New York City for East Coast shipping; similar seminars were held in Los Angeles and New Orleans earlier this year.

The seminar will provide company executives and operational and telecommunications managers in the shipping industry with information on the use of satellite communications, and on plan-

ning for transition of services from the present MARISAT system to the new international INMARSAT system, which is scheduled to start operations February 1, 1982.

The seminar agenda will include a description of the INMARSAT organization and system, expanded coverage areas, services and customer applications, interconnection arrangements, and future trends in maritime satellite communications.

Litton's Amecom Division Awarded \$3-Million Navy Contract Modification

Litton Systems, Inc., Amecom Division, College Park, Md., has been awarded a \$3,347,000 modification to an existing firm fixed price contract for a high frequency communication suite for one CG-48 class ship. The Naval Electronic Systems Command is the contracting activity. (N00039-80-C-0594)

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Ohio River Terminal Renovation Increases Throughput By 75 Percent

In June, 1981, Ohio River Company's Huntington, W.Va. coal transfer terminal began operating at a throughput of five million tons per year—up from an average of 3.5 million tons per year. The 75-percent-capacity increase was gained through a 19-month renovation project that

was carried out with only 1½ weeks downtime.

A conceptual feasibility study, completed in September 1978, served as the basis for the construction work, awarded to the Dravo Corporation, that began in November 1979. The conceptual study was undertaken by Soros Associates of New York City, who worked closely with the Ohio River Company to develop a scheme that was keyed to minimizing downtime, while address-

ing critical problem areas at the 52-year-old terminal. In addition to the design scheme, the study report also suggested new operating procedures, manpower requirements and operator duties necessary for realization of the significant throughput rate increase allowed by the new design. An option for an improved design, which would allow for a further increase, was also included. The original six-week downtime requirement projected

in the study was reduced to 1½ weeks through the final construction plan proposed by the Ohio River Company.

Previous Limitations

The Huntington Terminal yard averaged 75-85 coal cars dumped per eight-hour shift, with the maximum rate of 100 cars per shift, not sustainable due to yard congestion. The yard congestion was amplified by an average of 100 cars with special consignments awaiting assembly to a barge load.

The average total capacity for an eight-hour shift was further limited by the need to use a significant amount of time for car shifting. This procedure was mandated by the use of inside tracks for collecting empty cars, while outside tracks were used for loaded cars. To pull out empty cars, locomotives had to run through switches. This stopped the dumping operation.

Cars were taken to a bottom-dump type pit for simultaneous, parallel dumping of two cars. Problem-ridden car shakers, as well as damage to railroad cars and noise complaints from the community, were endured in an effort to speed coal discharge. In addition, the usual dump hoppers designed for 60-ton cars resulted in some spillage from present-day 100-ton cars.

One of the three coal conveyors was supported by a floating dock, which served as the barge loader. This arrangement required constant movement of barges to adjust to the river level, reducing operational efficiency, and also creating a significant maintenance burden.

Renovation Design

The design scheme for renovation was developed to allow for an increase in dumping capacity, from 75-85 coal cars per shift, to Ohio River Company's objective of 150-160 cars per shift, while minimizing downtime.

The Ohio River Company asked Soros Associates to first review a previous renovation proposal based on the installation of a new, 80-foot-long bottom-dump pit. The scheme allowed for dumping cars while they moved along a single track, with a system of hoist-mounted shakers utilized to increase the dumping rate.

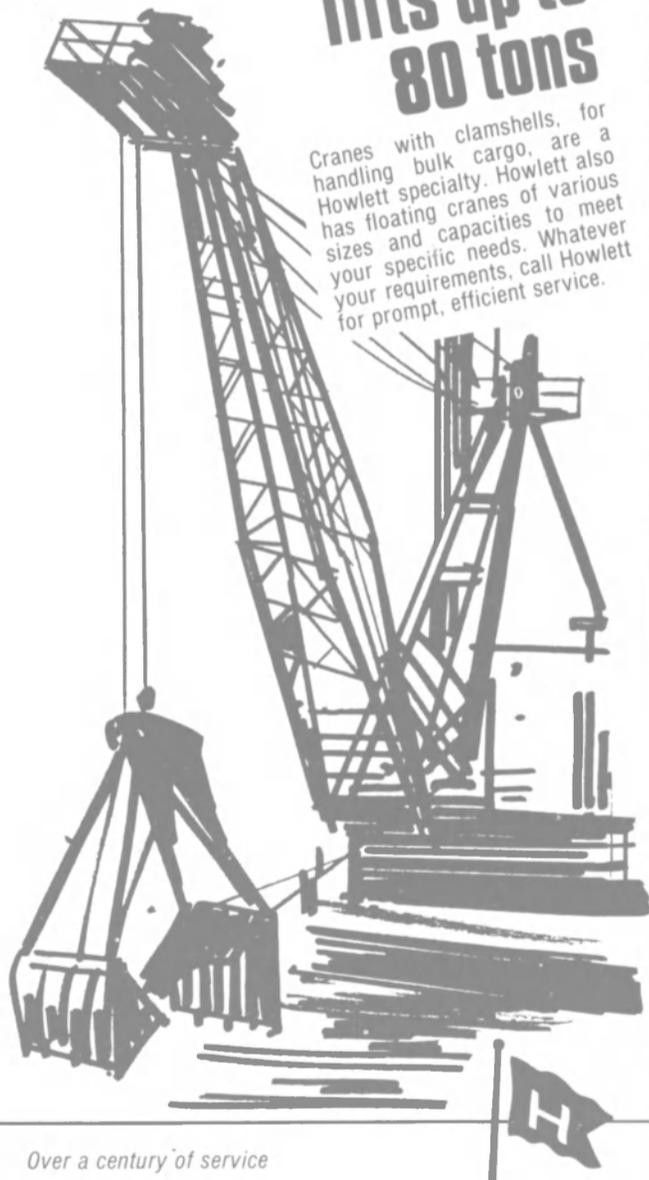
Soros rejected this concept and proposed a rotary-type car dumper as a preferred alternative. Soros also doubted the workability of a moving shaker system, and cited its high noise levels, longer periods required for coal thawing, expected damage to railroad cars, and probable significant contribution to downtime in the dumper area. As a result of these considerations, the rotary-type was accepted.

The project team considered several alternative new rail layout and operational schemes in an effort to gain maximum ad-

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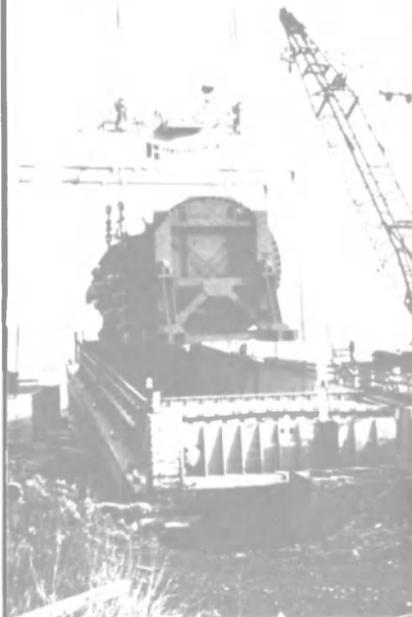
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vantage from the new dumper system.

The accepted scheme featured dividing the car storage yard into two sections, and establishing two pull-out tracks and a distribution switch. These features, along with new operational procedures, provided for a continuous dumping operation in a given shift, eliminating the previous necessity for a three-hour stoppage for car shifting. The accepted scheme also called for leasing adjacent property, easing yard congestion, and allowing for the delivery of strings of 25 loaded cars to the dumper at a time, up from 20 previously.

The accepted scheme also called for installation of a barge loading conveyor mounted on two 16-foot-diameter cells, and suspended via a hoist system to allow for adjustment to variations in the level of the river. This modification eliminated operational and maintenance problems experienced with the previous floating-dock barge loader.

Roy Moffett Named To MarAd Operations Post



Roy R. Moffett

F.X. McNerney, director of the Maritime Administration's Central Region, has announced the appointment of Roy R. Moffett as central region ship operations officer, stationed in New Orleans, La.

Until recently, Mr. Moffett had served as an operations research analyst in the region finance office. Prior to that time, he was central region intermodal development officer and earlier had served as chief, division of production, in the office of ship construction, in the office of ship construction at MarAd's headquarters, Washington, D.C. In the latter capacity, he managed several of the agency's shipyard activities including monitoring the progress of ship construction under the shipbuilding subsidy program. He also supervised all field construction representatives located at the major shipyards in the United States.

Swedish Yard To Build \$70-Million Tanker

A 123,500-dwt shuttle tanker is to be delivered to Elnar Rasmussen, Norway, by Sweden's Uddevallavarvet shipyard under the terms of a Nkr 400-million (\$70,000,000) contract. The vessel, intended for the buoy-loading

of oil from the Norwegian Statfjord field in the North Sea, is scheduled for delivery in the first half of 1983.

The new vessel will have overall length of 264 meters (about 866 feet), a beam of 48 meters (157 feet), and a draft of 14.5 meters (48 feet). Cargo capacity amounts to 147,500 cubic meters. Of completely new type, the shuttle tanker has very low fuel con-

sumption attained by means of optimum hull form in combination with a twin skeg arrangement and low speed propellers.

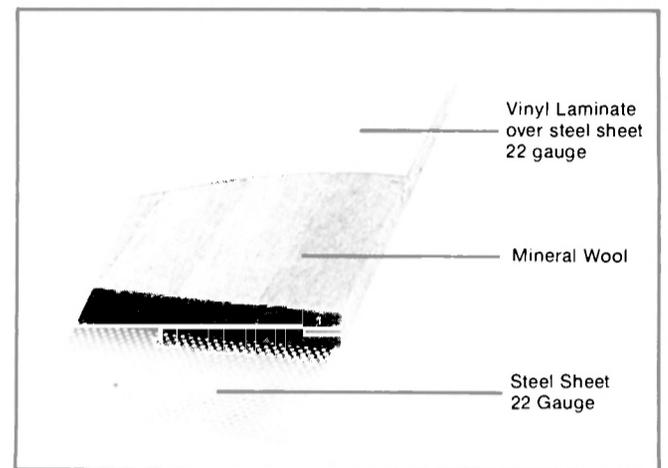
High maneuverability is made possible by double rudders, c-p main propellers, one bow thruster, and two thrusters abaft. Two independent main engines, each of 8,970 hp, two rudders, and two propellers will give the vessel high operational dependability.

Award \$26-Million Navy Contract To Hughes For Oceanographic Equipment

Hughes Aircraft Company, Fullerton, Calif., has been awarded a \$26,615,048 modification to an existing cost plus fixed fee contract for oceanographic equipment. The Naval Electronic Systems Command is the contracting activity. (N00039-81-C-0146)

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**Barge-Mounted Polyethylene Plant
Delivered To Site In Argentina**

Union Carbide Corporation, New York, N.Y., announced the recent completion and on-time delivery of the world's first waterborne polyethylene plant. The 120,000 metric tons-per-year UNIPOL process plant is undergoing pre-operational testing at Bahia Blanca, Argentina, following a 15,000-mile ocean voyage from the shipbuilding facilities of Ishikawajima-Harima Heavy Industries Company (IHI), Nagoya, Japan.



The world's first transportable polyethylene plant en route from Japan to Bahia Blanca, Argentina.

The plant has been purchased by IPAKO S.A., a subsidiary of the Garovaglio & Zorraqin conglomerate of Argentina, and assigned to Polisur. Polisur S.M. is an Argentine corporation jointly owned by IPAKO and the Direccion General de Fabricaciones Militares. The plant will be an integral part of the new Polisur polyethylene complex now nearing completion at Bahia Blanca.

The W, for waterborne, polyethylene plant is a versatile time and cost saving option to conventional on-site plant construction and is available only from Union Carbide. It is made possible by the simplicity and mild operating conditions of the company's UNIPOL process which occupies only one tenth the space of conventional high pressure polyethylene plants and requires only one quarter the energy. The Argentine W plant is 89 meters in length by 22.5 meters in width (about 292 by 74 feet), yet is a complete full-scale production unit.

The W plant option can mean savings of as much as two to three years from the time required to build a comparably sized conventional polyethylene plant in out-of-the-way locations.

W plants can be towed to their destination by oceangoing tugs or, as in this case, transported atop a carrier ship such as the

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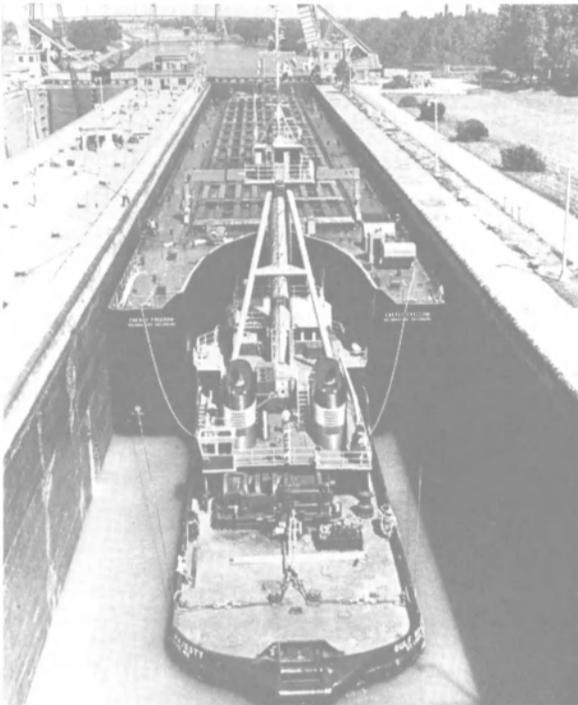
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Super Servant 1, a semisubmersible vessel belonging to Wijsmuller B.V. of Holland. The 15,333 mile voyage across the Pacific through the Panama Canal to Bahia Blanca took 49 days.

Energy Freedom Widest Ever To Travel Through Welland Canal



Photographer: Mike Conley, St. Catharines Standard

It was a close fit for the 550-foot coal carrier Energy Freedom as the tug Gulf Majesty (shown above) squeezed the barge into Lock 4 of the Welland Canal. (See MARITIME REPORTER October 1 issue cover story.) The barge has a beam of 78 feet and the lock is only 80 feet wide. The Energy Freedom is the widest ever to travel through the waterway and was downbound with a cargo of coal for delivery at Wilmington, Del.

With the 149-foot Gulf Majesty in its 60-foot-deep stern notch, the tug/barge combination measures 642 feet. The 7,200-horsepower tug is fitted with a secondary 49-foot pilothouse, and bow and side bumpers were installed to convert the tug from a towing to a combination notch/towing tug.

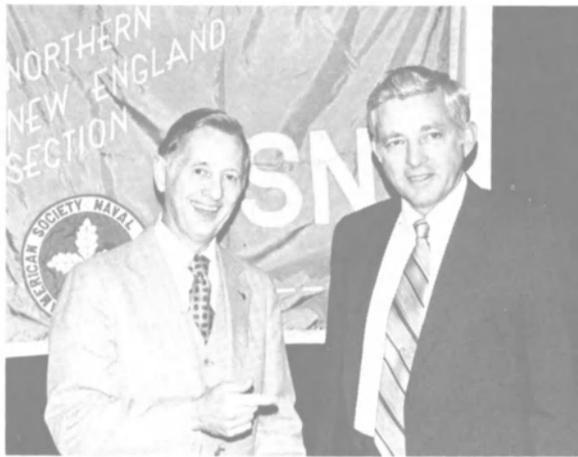
The Energy Freedom, built by Bay Shipbuilding Corp., Sturgeon Bay, Wis., is owned by Universal American Shipping Corporation of Greenwich, Conn. Bay Shipbuilding Corp., a subsidiary of The Manitowoc Company, Inc., also handled the converting of Gulf Marine Corp.'s fleet tug Gulf Majesty to combination notch/towing tug.

Electric Boat's Submarine Facilities Subject Of ASNE Section Presentation

Kenneth Brown, manager of operations engineering at General Dynamics Corporation's Electric Boat Division in Groton, Conn., was the guest speaker at a recent meeting of the American Society of Naval Engineers, Northern New England Section. The dinner meeting was held at Pier II in Portsmouth, N.H.

Mr. Brown described the facilities that were designed and developed by Electric Boat to build the Trident class submarines. These facilities included a \$150-million, 10-acre land level submarine construction complex which provides for the simultaneous construction of two or more classes of submarines, and the automated submarine frame and cylinder manufacturing facility at Quonset Point, R.I. The Quonset Point

November 1, 1981



ASNE Northern New England Section chairman Philip V. Johnson (left) welcomes speaker Kenneth Brown of General Dynamics to meeting held in Portsmouth, N.H.

facility, the only one of its kind in the world, provides a major improvement in the method of fabricating submarine hull sections. Pictures, slides and models of the unique equipment were used to illustrate the details of Mr. Brown's presentation.

Krupp Atlas Opens New Houston Office



Krupp Atlas has recently relocated to a new expanded facility in Houston. Located at 6023 South Loop East, this new office will be headed by Krupp's Gulf Coast regional manager Doug Blue. Krupp will continue to cater to its survey and marine electronics customers by providing expanded warehousing, service, and sales support.

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ABS Reports Record Number Of Vessels Under Classification

The number of vessels in American Bureau of Shipping (ABS) classification has climbed to a record total, William N. Johnston, the chairman and president, reported at the semiannual meeting of the international ship classification society.

ABS classed 388 new vessels of 3,200,000 dwt or 1,857,000 gt in the first six months of 1981, and 45 existing vessels of 784,000 dwt or 438,000 gt. "With these additions, the number of vessels in ABS classification climbed to a record total," Mr. Johnston said. As of mid-year there were 15,956 vessels of 196,021,000 dwt or 110,088,000 gt in ABS classification, representing 91 flags of registry.

The chairman said that ABS classification contracts for newbuildings were received at a brisk rate in the first six months. During that period contracts to class 679 new vessels of 4,582,000 dwt or 2,658,000 gt were received, with particularly strong contributions coming from the dry bulk carrier, mobile offshore drilling unit, supply vessel, and fishing vessel sectors.

The newbuilding classification contracts, from 44 countries, enabled the ABS order book to reach a mid-year total of 2,234 vessels of 19,297,000 dwt or 12,471,000 gt. Mr. Johnston said, "We have not had this many vessels on our order book since January of 1977, and it supports our sense of confi-

dence in the future outlook for ABS and the maritime industry."

Mr. Johnston noted that according to many estimates the world's bulk carrier fleet is expected to increase by 20 percent in the next three years. He said that ABS experience supports this projection as contracts to class 56 bulk carriers were received in the first six months of 1981 — more than the total number received in all of 1980 for this type of vessel.

"Orders for mobile offshore drilling units have surged to a remarkable level," the chairman reported. ABS received contracts to class 78 units in the first six months of 1981, increasing the total drilling units contracted for or being built to ABS class to 222, and at that time there were an additional 321 units in ABS classification.

Mr. Johnston added that ABS activity with the classification of offshore installations has moved ahead strongly. ABS classed five installations in the first half of this year. There are a total of eight installations now classed by ABS. In addition, there were 12 installations contracted for or being built to ABS classification.

ABS classed 47 support boats for the offshore industry in the first six months and received contracts to class 106 more, twice the number of contracts received in all of 1980 for these vessels. ABS also received contracts to class 63 fishing vessels in the first half, triple the number in all of 1980.

In the first six months 57,600 containers were certified to ABS "Container Rules," an increase of 40 percent over the first half of 1980. Earlier this year, ABS certified its 500,000th container.

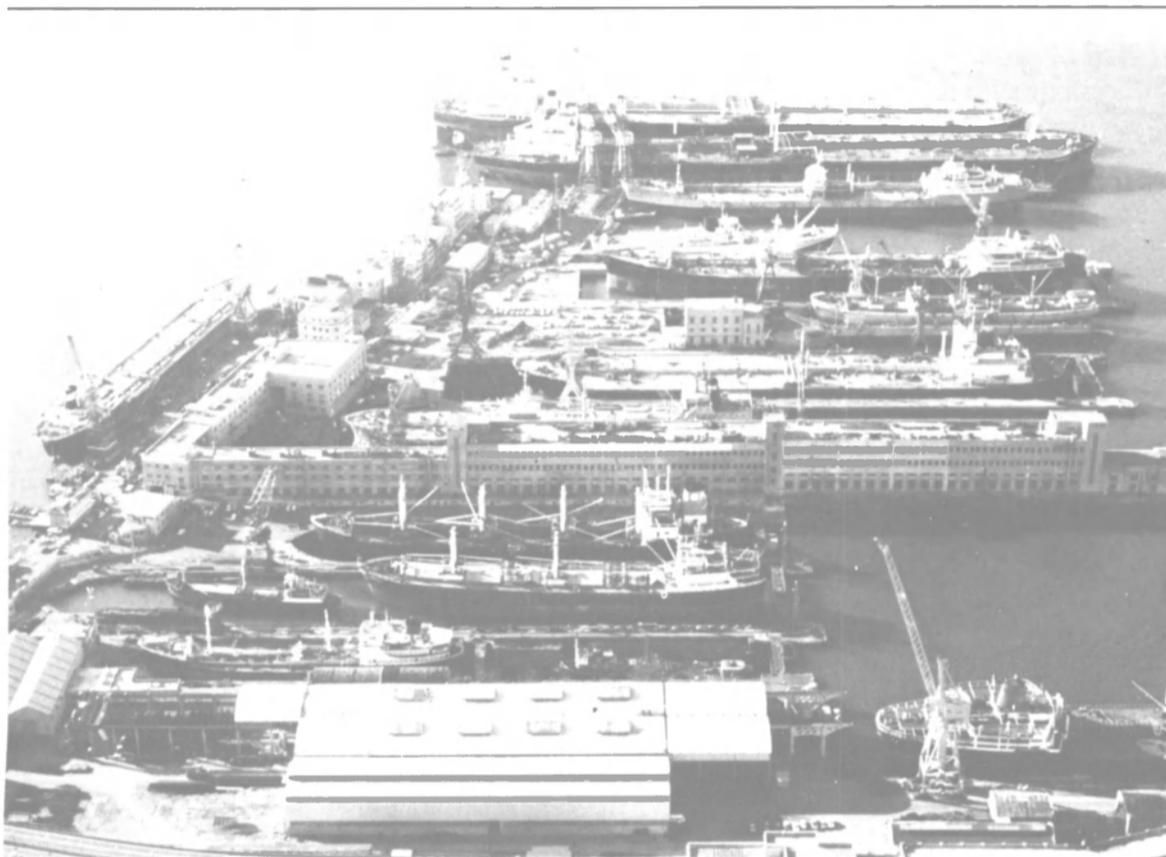
The ABS quality assurance program has been expanded with the addition of quality control procedures for the manufacture of diesel engines, gas turbines, reduction gears, container refrigeration machinery, and rotating electrical equipment. The chairman said that 58 manufacturing plants are now producing materials and components under the ABS quality assurance programs.

The computerized survey status system for ABS-classed vessels continues to be expanded. Seven offices on three continents were added in the first half of this year, making a total of 38 ABS offices and seven clients who have direct access to the system.

ABS continues to devote effort to research and development. Mr. Johnston cited some of the projects in which ABS was involved, including the evaluation of ice loading on ships, collision damage resistance of offshore structures, propeller blade strength, effects of extreme wave-induced loads on ship designs, and fatigue evaluation of ships and other marine structures.

Mr. Johnston reported that in June ABS had signed a "Memorandum of Understanding" with the U.S. Coast Guard providing for Coast Guard acceptance of ABS plan review on the inspection of selected items on new vessel construction classed by ABS and certified by the Coast Guard. The items covered include: hull structure of ships, mobile offshore drilling units and barges, as well as inert gas systems, crude oil washing systems, and certain piping systems. Mr. Johnston said that discussions to expand the areas of cooperation covered by the memorandum are continuing.

As of mid-year, 83 governments had authorized ABS to issue loadline certificates under the 1966 International Convention. Of the 51 governments that previously had authorized ABS to act on their behalf for SOLAS-60, as of mid-year 34 of those governments have extended their authorizations for SOLAS-74. ABS also is authorized



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by 46 governments to issue national tonnage certificates on their behalf.

Regarding MARPOL 1974 and the associated International Conference on Tanker Safety on Pollution Prevention, known as the Protocol of 1978, ABS has been involved with the review of tankers for compliance to the regulations. To date, ABS has reviewed inert gas systems of more than 450 vessels, and reviewed the crude oil washing and clean ballast tank or segregated ballast tank systems of more than 400 vessels.

Texaco Grant Presented To Fort Schuyler Foundation

The Maritime College at Fort Schuyler Foundation, Inc. was recently presented with a \$2,000 unrestricted contribution from the Texaco Philanthropic Foundation.



The gift was presented by alumnus Charles J. Gay (left), assistant general manager of the Texaco Marine Sales Department, to Cadet Howard Hawrey, 1/c, Regimental Commander, representing the cadet corps. The Fort Schuyler Foundation Inc. was established in 1976 to assist the college in its academic and scholarship programs. This was Texaco's second unrestricted gift to the college this year under a special \$4,000 grant program.

Patti Industries Delivers Two Tugs, Receives Contracts For Two More

Patti Industries Inc. of Pensacola, Fla., recently delivered the M/V Rachael Mary and M/V Sylvania Curole. The Rachael Mary, a 1,200-hp tunnel designed 65-foot by 24-foot by 9-foot 6-inch Model bow tug was delivered to Hugh Eymard and Donald Vizier, and will work for Hugh Eymard Towing Co. Inc. of Harvey, La.



Powered by two GM 16V71 engines, the 65-foot Rachael Mary will work for Hugh Eymard Towing Co. of Harvey, La.

In addition to tunnels, the Rachael Mary was constructed with longitudinal framing, adding strength and fairing to the hull and superstructure. The Rachael is equipped with a pair of GM 16V71 main engines with 5:1 reduction, and two 30-kw generators supplied by George Engine Co. The hydraulic steering was furnished by Custom Hydraulics, air controls were Kobelt, and a Smatco towing winch with S.S. stern rollers was installed for anchor handling.

The Sylvania Curole was delivered to T.U.

Gruidry and Reynolds Curole. The 65-foot 1,000-hp tug was constructed with Patti's longitudinal and transverse frames, and is a sister ship to the M/V Katie Cherie and M/V Julie Plaisance. The Sylvania will be working for Huey L. Cherie Inc. of Galliano, La. The 12V71 GM engines and 30-kw generators were supplied by Kennedy Engine Co. of Mobile, Ala.

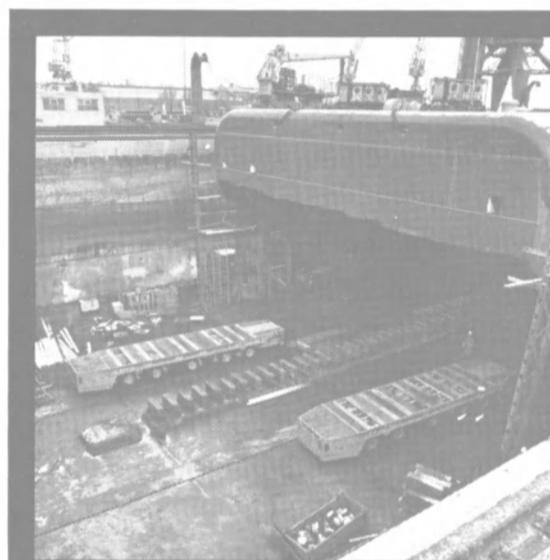
The delivery of the M/V Rachael Mary and the M/V Sylvania Curole makes five consecutive on-time deliveries in 1981 for Patti Industries. Patti's next delivery will be the M/V Harvey Viking, a 90-foot, 3,000-hp oceangoing tug. The Viking will be delivered to Harvey Gulf in early 1982.

Patti Industries Inc. also announced the signing of two new contracts. One contract is with Brazosport Towing Inc. of Freeport, Texas, for the construction of one 100-foot



Patti Industries recently delivered the 65-foot Sylvania Curole to T.U. Gruidry and Reynolds Curole. The 1,000-hp tug is powered by GM 12V71 engines.

by 30-foot by 14-foot ABS-classed 3,000-hp oceangoing tug, and a contract with Monad Systems Inc. of Hampton, Va., for a 65-foot 1,200-hp Model bow tug.



Amsterdam Drydock Company Repair Highlights

Cost saving assembling methods

The conversion of the cable-layer barge "Skagerrak" to a full-fledged, self-propelled seagoing vessel involved, among other things, the building of a new bow of approximately 650 tons of steel.

The pictures show the use of two Kamag trailers putting a 135 tons bottom block into exact position.

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Ingalls Shipbuilding Division of Litton Industries, located on the beautiful Gulf of Mexico in Pascagoula, Mississippi, was recently awarded \$667 million in contracts for the construction of two additional Aegis Guided Missile Cruisers . . . a new class of Navy ships to be built over the next 4 years . . . this being the third and fourth ships of this series for Ingalls to build has created new employment opportunities for Ingalls. Ingalls is accepting applications for the following key management position:

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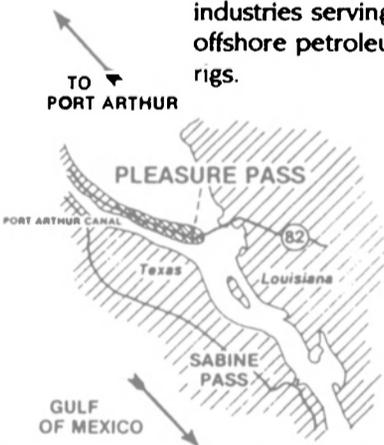
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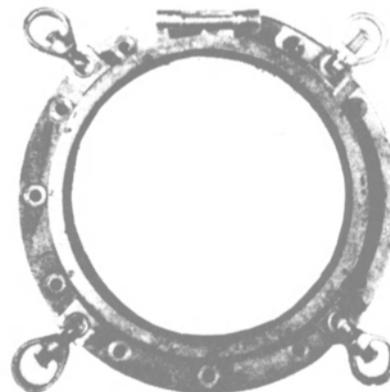
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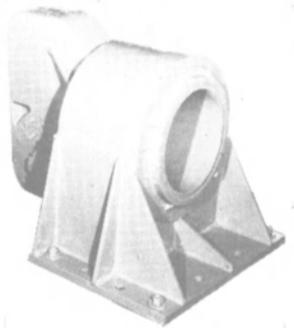
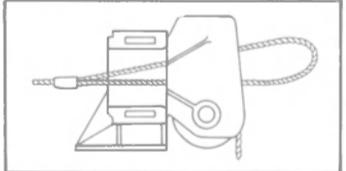
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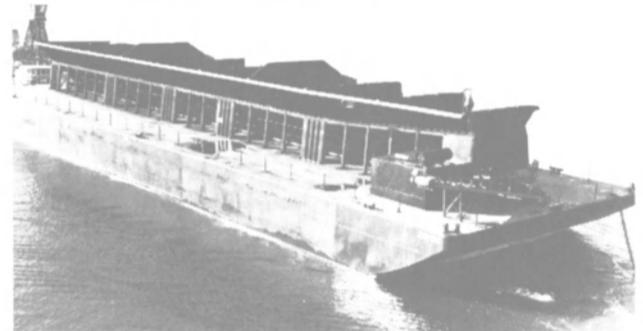
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Hopper Unloading Gates: 27-36" x 36" Horiz. sliding gates
w/individual hydr. controls.

Main Unloading Conveyor: 48" wide belt, 30 H.P. elect. motor, 250
ft./min. Max. disch. rate - 667 cu. yd./hr.

Transfer Conveyor: 42" wide belt, 10 H.P. elect. motor, 350 ft./min.
off loading location - Stbd. side fwd. at 9 ft. above deck.

Hull Plating: Deck, side shell & bott. 9/16"

Split Type Self Dumping Scows

Built 1979. For sale, long
or short term charters

SPECIFICATIONS

ABS loadlined for USCG-approved
offport dumping

Length (ML'D) 180' - 0"
Beam (ML'D) 50' - 0"
Depth of Mid-Body (ML'D) 14' - 0"
Hopper Length (ML'D) 128' - 0"
Level Hopper Volume 1421 cu. yd.
DWT @ d = 10.22 ft. 1615 L.T.
Rake Lengths F. & A. 26' - 0"
Twin Skegs

Stern & Fwd. Rake Decks Stepped up 2' - 0"
Engine GM 671

Hydraulic Pumps (2) 12 GPM & 75 GPM
Time To Open (Fully Closed to Fully Open)
..... 6 Min. 5 Sec.

Time To Close 4 Min. 34 Sec.
Hopper Angle Fully Open 53.78°
Fuel Tank Capacity 445 Gal.
Hydraulic Cylinders (2 Fwd. & 2 Aft)
..... 18" Diam. 120" Stroke

Plating
Side 9/16"
Bottom 5/8"
Hopper 5/8"

Combination Deck Cargo & Tank Barge

Fully-Classed
Ocean Service



230' x 60' x 15' Comb. Deck Cargo & Grade 'D' Tank Barge

Length O.A. 230' - 0"
Beam 60' - 0"
Depth 15' - 6"
Deadrise 6"
Number of Tanks 10
Total Tank Volume @ 95% 24,000 BBL
Cargo Pumps Two Twin Screw, Deleval IMO GTS-268-066-CBEM
Rating 1500 GPM, 1150 RPM, 100 PSIG Disch. Press., 5000 SSU
Location Below Deck Pumproom in Fwd. Rake
Diesel Engines Two Detroit Model 8V-71, 230 HP @ 1800 RPM
Location Above Deck in Fwd. Deckhouse
Fuel Capacity 1400 Gal.
Fill & Disch. Connections 8" ANSI 150# FLG P/S
Heating Coils 2" Sch. 80 Pipe For Shore Steam
Hull Plating Deck 1/2", Side Shell 3/8", Bott. 3/8", Shear Strake 1/2"
Deck Cargo Dwt. at Loadline 3900 S.T.

For additional information or to make an
appointment to inspect, call or write:
Tom Sherwood, Andy Canulette, Jr.,
or Dan Rogers



ZIDELL EXPLORATIONS, INC.

3121 S.W. Moody Ave., Portland, Oregon 97201
Phone: (503) 228-8691 • Telex 36-0503 • Cable "Zidell"

For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes 70-foot Track Span

(CAN BE WIDENED TO 100 FEET)



Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

AC Power Input Through Cable Reel
DC Hoist & Gantry Motors & Controls
4-150 HP-240 Volt DC Hoist Motors
4-150 HP-240 Volt DC Gantry Motors
2-265 KW-500 Volt DC M-G Sets

Units Can Be Modified

Possible other uses:

- 1) Moving heavy equipment
- 2) Dam Sites
- 3) Concrete Prefab plants
- 4) Railroad yards
- 5) Steel plants

Geared Track is also available at extra cost



American Crane Barge

BARGE DATA

Displacement Light	1,200T
Gross Tonnage	911
Net Tonnage	911
Length	151'-6"
Beam	60'-0"
Hull Depth	12'-0"
Flush Deck Area	6,000 Sq. Ft.
Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co
Model & Type	305 Revolver
Capacity	125 T.
Boom (Certified rating with 140' length, 160' available)	
20 part rigging	2,200 ft., 7/8" C - 6 x 36 I.P.S.
4 part standing standing bail	2-186 ft., 1 1/4" C - 6 x 36 I.P.S.
Main Hoist (Certified rating: 58.5 T. @ 50' to 100'; 8 part rigg.)	
20 part rigging	3,250 ft., 1" C - 6 x 36 I.P.S.
Aux. Hoist (Certified rating: 10.0 T. @ 100') 15 T. Capacity	
2 part rigging	635 ft., 7/8" C - 6 x 66 I.P.S.

FOUR 30-TON

Container Cranes

70-foot Track Span

NEW 1970-72

Priced at a fraction of today's new replacement cost. Good Condition. Immediately Available. From LASH Ships. Late Model. Manufactured by PACEO. Suitable for Ship, Barge or Land Use. Manufactured to ABS and MARAD requirements.

AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M. • 32'0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

Hoist and Trolley not shown but are included.

Other areas of possible use:

- 1) Pipe and steel yards
- 2) Barge building
- 3) Concrete pre fab plants



For additional information, brochures or inspection, call: Tom Sherwood, Andy Canulette, Jr., or Dan Rogers



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Hugh Sturdivant, Sales Manager

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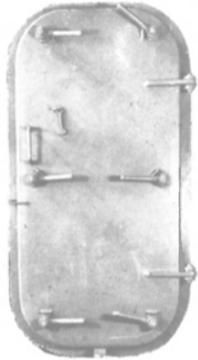


WORLD
WIDE
DISTRIBUTION

FOR SALE

NEW WATERTIGHT DOORS

Steel Dogs



6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE

26"x48" 26"x66"
26"x60" 30"x60"

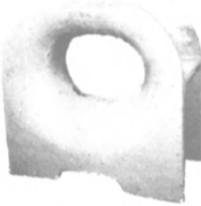
EACH DOOR

IMMEDIATE DELIVERY

NEW 7" RADIUS PANAMA CHOCKS

(MEET PANAMA REGULATIONS)

14" X 10" CLEAR OPENING



With extended legs for welding to deck. 14" Wide on base—length 28"—height 27 1/4". IMMEDIATE DELIVERY FROM STOCK.

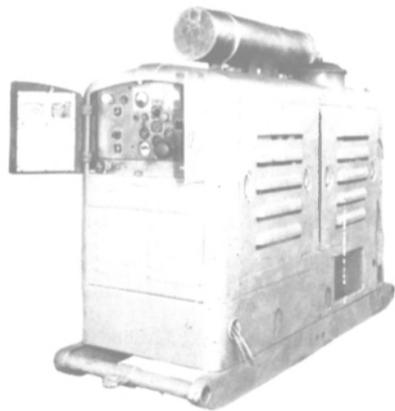
NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS FOR SMALL VESSELS



Closed chocks—12" X 6 1/2" inside opening—23" overall outside—8" high—15" high—7" radius—weight 110 lbs. IN STOCK.

30 KW GM 3-71 DIESEL GENERATOR SETS

with self-contained fuel tank and switchboard



\$7450

30KW Delco generator—80% P.F. GMC 3-71 diesel has 24 volt electric starter, with oil, amps & temp gauges, alternator and muffler. Generator equipped with main circuit breaker, voltage regulator, voltmeter, ammeter, frequency meter. 220/440/3/60—1200 RPM. Dry weight 4950 lbs. 100" long x 34" wide x 78" high.

THE BOSTON METALS COMPANY

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Marine Warehouse (301) 752-1077

1981 — MARINE SURVEY PRACTICE COMPENDIUM — By R.A. Cady — \$54. pp
Other guides for Surveyors & Port Engineers available.
MARINE SURVEY PRESS — Box 9307
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CROUSE HINDS 1000 WATT FLOODLIGHTS

IN STOCK

NEW — UNUSED

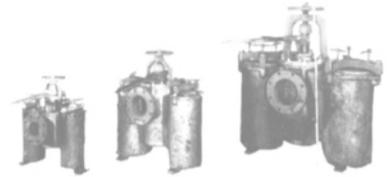


HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.I. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

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NEW — UNUSED DUPLEX STRAINERS



Available from cancelled sea-going barge construction contract.

- (1) 4" — Bronze strainer baskets for water. Can furnish Type 50 for oil.
- (2) 8" — Steel strainer baskets for sea water — Type 50

Mfg. by Hayward
BIG DISCOUNT PRICES

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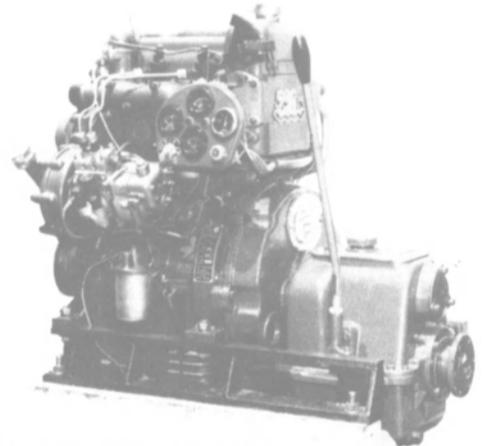
THE DIESEL DEAL OF THE YEAR! 20 HP Marine Diesel Engine

Complete with 2.1:1 Gear, 2 Batteries, Tools and Maintenance Spare Parts

SPECIAL INTRODUCTORY PRICE
\$1749
F.O.B. BALTIMORE

OUR SERIES 90

perfect for powering small pleasure, fishing and commercial boats, auxiliary engine use, etc.



CHECK THE SPECS!

- | | | | |
|--|----------|---|---------|
| • Cylinders | 2 | • 12-Hr. SHP output rating | 18.4 HP |
| • Max. rated HP | 20 | • Approx. speed of output shaft at rated RPM: | |
| • Rated RPM | 2000 | Forward | 712 |
| • Fuel Consumption at rated output approx. | 2 gal/hr | Reverse | 735 |
| • Rotation: Clockwise when running forward and viewed from output end of shaft | | | |

FACTORY NEW — IN CRATES — AND COMPLETE WITH INSTRUCTION BOOK, PARTS LIST AND PERFORMANCE CURVES

Precision made and beautifully crafted, our series 90 marine diesel is a rugged power plant. Versatile, compact and dependable, it's an exceptional engine.

At 880 lbs (400Kg) it's a surprisingly

light high-speed 2-cyl. 4-cycle diesel. Water-cooled with a non-ferrous heat exchanger and sea water pump, it's equipped with reverse reduction gear box.

While possible from our warehouse inventory, we offer

IMMEDIATE DELIVERY

We are your Direct Factory Outlet nearest to Gulf and Florida Ports

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BUYERS DIRECTORY

For Sale at Zidell

AVAILABLE NOW FOR IMMEDIATE SHIPMENT

Two 500-ton Gantry Cranes 70-foot Track Span

(CAN BE WIDENED TO 100 FEET)



Originally Barge Handling. As used on LASH Ships. Manufactured by Alliance. Late Model built to ABS and MARAD requirements.

Good Condition. Immediately Available. Priced at a fraction of New Replacement Cost. Complete with Lifting Beams and Spreader Beams (not shown in photograph)

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4-150 HP-240 Volt DC Hoist Motors
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American Crane Barge

BARGE DATA

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Hull Depth	12'-0"
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Engine Room Area	412 Sq. Ft.
Office & Eating Area	136 Sq. Ft.
Diesel Fuel Tanks	36,000 Gal.
Fresh Water Tanks	36,000 Gal.
Bunker "C" Fuel Tanks	12,000 Gal.
Ballast System	None

CRANE DATA

Manufacturer	American Hoist & Derrick Co.
Model & Type	305 Revolver
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AC Power Input with Cable Reel and 350 feet of 500 MCM Cable.

MG set: 250 HP-AC-170 KW 230 DC.

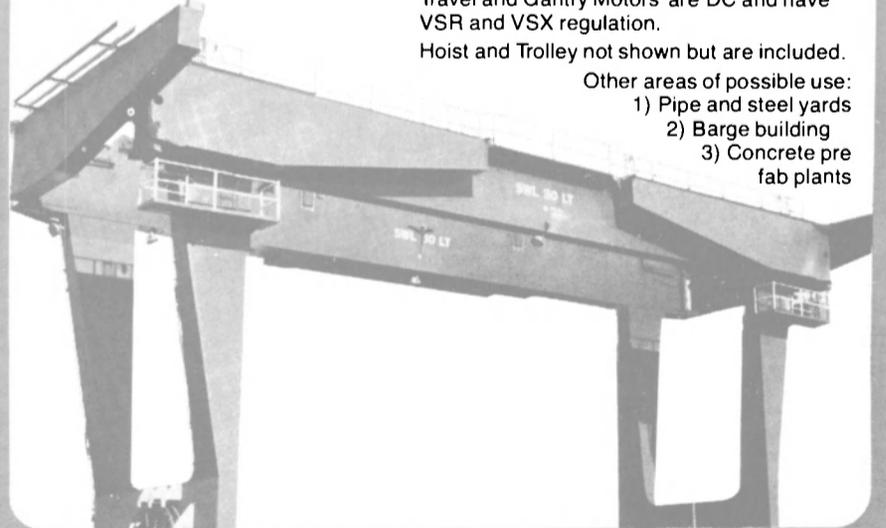
• 200 HP DC Hoist Motor • 100 HP DC Trolley Motor • 2-40 HP DC Gantry Travel Motors • Trolley Travel 275 F.P.M. • Gantry Travel 100 F.P.M. • Hoist Speed: 30 LT @ 85 F.P.M.; 20 LT @ 100 F.P.M.; Empty Spreader 200 F.P.M.

• 32' 0" Maximum Outstretch • Hoist, Trolley Travel and Gantry Motors are DC and have VSR and VSX regulation.

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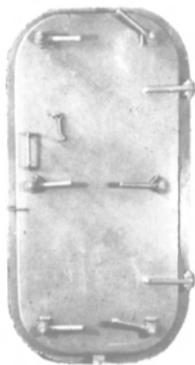
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WORLD
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FOR SALE NEW WATERTIGHT DOORS



Steel Dogs
6-Dog right and left hand hinged doors with frames. Constructed of 1/4" steel plate and meet Coast Guard regulations for above deck as well as below deck use. All dogs are bronze bushed. Also available with 8" bronze portlights.

SIZE
26"x48" 26"x66"
26"x60" 30"x60"

EACH DOOR
IMMEDIATE DELIVERY



**NEW 7" RADIUS
PANAMA CHOCKS**
(MEET PANAMA REGULATIONS)
14" X 10" CLEAR OPENING

With extended legs for welding to deck. 14" Wide on base—length 28" — height 27 1/4". IMMEDIATE DELIVERY FROM STOCK.

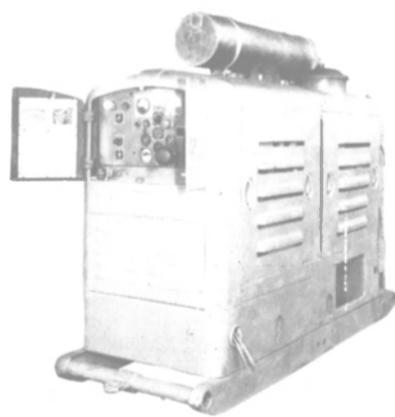
**NEW UNUSED 12" X 6 1/2" PANAMA CHOCKS
FOR SMALL VESSELS**



Closed chocks — 12" X 6 1/2" inside opening — 23" overall outside — 8" high — 15" high — 7" radius — weight 110 lbs. IN STOCK.

30 KW GM 3-71 DIESEL GENERATOR SETS

with self-contained fuel tank and switchboard



\$7450

30KW Delco generator—80% P.F. GMC 3-71 diesel has 24 volt electric starter, with oil, amps & temp gauges, alternator and muffler. Generator equipped with main circuit breaker, voltage regulator, voltmeter, ammeter, frequency meter. 220/440/3/60—1200 RPM. Dry weight 4950 lbs. 100" long x 34" wide x 78" high.

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CROUSE HINDS 1000 WATT FLOODLIGHTS



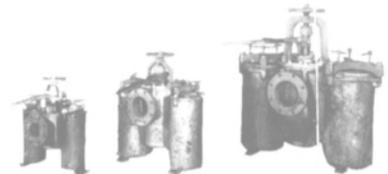
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NEW — UNUSED

HEAVY DUTY CAST ALUMINUM marine floodlights—series 48116—ADE 16. U.L. Marine listing 595—also USCG accepted. Mogul base—will handle 1000 watt incandescent or clear metal Halide bulb. Corrosion-resistant—hinged door.

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NEW — UNUSED DUPLEX STRAINERS



Available from cancelled sea-going barge construction contract.

- (1) 4" — Bronze strainer baskets for water. Can furnish Type 50 for oil.
- (2) 8" — Steel strainer baskets for sea water — Type 50

Mfg. by Hayward
**BIG DISCOUNT
PRICES**

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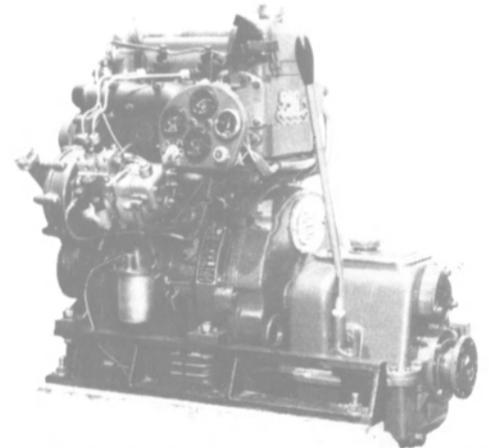
THE DIESEL DEAL OF THE YEAR! 20 HP Marine Diesel Engine

Complete with 2.1:1 Gear, 2 Batteries, Tools and Maintenance Spare Parts

SPECIAL
INTRODUCTORY
PRICE
\$1749
F.O.B. BALTIMORE

OUR
SERIES 90

perfect for
powering small
pleasure, fishing
and commercial
boats, auxilliary
engine use, etc.



CHECK THE SPECS!

- | | | | |
|--|----------|---|---------|
| • Cylinders | 2 | • 12-Hr. SHP output rating | 18.4 HP |
| • Max. rated HP | 20 | • Approx. speed of output shaft at rated RPM: | |
| • Rated RPM | 2000 | Forward | 712 |
| • Fuel Consumption at rated output approx. | 2 gal/hr | Reverse | 735 |
| • Rotation: Clockwise when running forward and viewed from output end of shaft | | | |

FACTORY
NEW — IN CRATES — AND
COMPLETE WITH INSTRUCTION
BOOK, PARTS LIST AND
PERFORMANCE CURVES

Precision made and beautifully crafted, our series 90 marine diesel is a rugged power plant. Versatile, compact and dependable, it's an exceptional engine. At 880 lbs (400Kg) it's a surprisingly

light high-speed 2-cyl. 4-cycle diesel. Water-cooled with a non-ferrous heat exchanger and sea water pump, it's equipped with reverse reduction gear box.

While possible from our warehouse inventory, we offer

IMMEDIATE DELIVERY

We are your Direct Factory Outlet nearest to Gulf and Florida Ports

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M & T Model O-2D Marine Outboard Diesel Driven Propulsion Units



**EQUAL TO
NEW CONDITION
\$18,750**

**Compare Our Units
With Offers By Others**

Equal-to-new-condition. Driven by GM 6-71 diesel—165 HP @ 1800 RPM—2-cycle—6 cylinders. Weight 9300 lbs—48" X 24" propeller. Unit shown with outboard shaft in running position. Distance from deck to bottom of skeg 89". 4 Units immediately available.

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FIBERGLASS 53 PERSON DIESEL POWERED LIFEBOATS



- Length overall 8 M. (26.24')
- Beam over fenders 2.89 M (9.5')
- Beam over outside shell 2.75 M (9')
- Depth 1.15 M (3.7')
- Empty boat weight 2380 Kg (5247 lbs)
- Boat weight w/passengers 6355 Kg (14,010 lbs)
- Cubic ft. per passenger 15.31
- Distance between hooks 6700 MM (21' 1 1/2")

MFG. BY FR FASSMER & CO., GERMANY.

With air-cooled Deutz diesel engine, gear box and propeller. Has fuel oil and water tanks, provision storage. Built to German Lloyds requirements. #6706 built 1977; #6859 built 1977.

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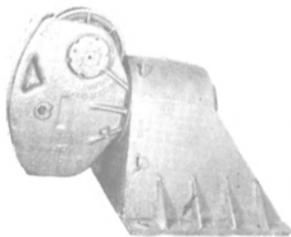
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SURPLUS BERGER FAIRLEADS

2 Model 620 — for
1 5/8" wire — 20"
sheave.

\$3500

Also 1 for 1 1/4" wire



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60" X 54" WATERTIGHT STEEL DOUBLE DOORS



Used doors — with 10" diameter lites. Each door has 7 dogs for a total of 14.

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49¢

Per Pound

NEW — UNUSED 2 3/4" STUD LINK CHAIN

WITH CERTIFICATES

20 Shots—grade 2—49¢/lb. Each shot weighs 6450 lbs.
Connecting links for above chain — \$575 each

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NEW — UNUSED 32' ALUMINUM ACCOMMODATION LADDERS



Mfg. by Ramp Master. With 24" wide treaded aluminum steps. Self-feathering — with lower platform and safety rails. (Turntables not available.) New from factory, ladder only would be approximately \$10,500 and lower platform \$450.

OUR PRICE **\$5995** (New turntables cost about \$3300)

THE BOSTON METALS COMPANY

313 E. Baltimore St. Baltimore, Md. 21202
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NEW BALANCED HEAD FAIRLEADS

1 1/4"

\$2775



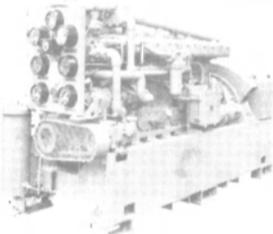
1 1/2"

\$3350

THE BOSTON METALS COMPANY

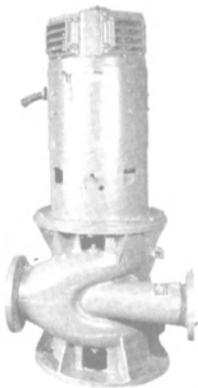
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Marine Warehouse (301) 752-1077
TWX: 710-234-1637

LST MACHINERY



100KW GBD-8 DIESEL GENs.

120/240 VDC—417 amps—stab shunt—1200 RPM—Delco generator—Self-excited. ENGINE: Superior GBD-8—8-cyl—5 1/2 X 7—150 HP—30 volt electric starting. Reconditioned to ABS. Dry wt. 10,000 lbs—DAL 124"—65 11/16" high—42" wide. Hgt necessary to pull piston 68". Fuel consumption 0.620 lbs/hr.



GARDNER-DENVER BALLAST PUMP

Bronze — 1500 GPM — 56' head or 25 bs — 8" suction — 6" discharge. MOTOR: Century 30 HP 230 VDC 110 amps 1750 RPM. 40° T rise — stab. shunt — ballbearing — dripproof. Controls available.

TAILSHAFTS

Diameter: 6 1/8" Length: 21' 2 5/8"



GOULD FIRE & BILGE PUMP

250 GPM & 100 lbs—4" suction—3" discharge—2200 RPM—bronze—manufactured by Gould. Direct connected to 30 HP 230 volt DC Louis-Allis motor.



CLUTCH TIRE AIR COMPRESSOR

Model 320—4 X 2 1/2 X 3"—10/15 CFM—100/150 PSI—700 RPM. MOTOR: 3 HP—230 volts DC—1750 RPM.



COMBINATION LUBE OIL & SALT WATER COOLING PUMPS

Model 3630—mfg by Goulds—1150 RPM. Rotary lube oil pump one end (35 GPM @ 15 PSI—1 1/2" X 1 1/2")—salt water circulating pump other end (35 GPM @ 15 PSI—2" X 1 1/2") G.E. Motor model 5B254A1988—type B—Frame 254—3 HP—230 VDC—11.9 amps—1150 RPM compound—Cont. 40°C temp rise. Ball bearing.

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Baltimore, Md. 21202

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Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
James D. Nall Co., Inc., 3195 NW 20th Street, Miami, FL 33142
York Division (Borg-Warner Corp.), P.O. Box 1592, York, PA 17405

ANODES—Cathodic Protection

Engelhard Industries Division, 2655 U.S. Route 22, Union, NJ 07083
Kaiser Aluminum & Chemical Corp., 300 Lakeside Dr., (Rm 2039KB), Oakland, CA 94643
Wilson Walton International Inc., 66 Hudson Street, Hoboken, NJ 07030

BEARINGS—Rubber, Metallic, Non-Metallic

Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Lucian Q. Moffitt, Inc., P.O. Box 1415, Akron, Ohio 44309
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186

BLASTING—Cleaning—Equipment

Aurand, 1270 Ellis Street, Cincinnati, OH 45223
Butterworth Systems Inc., 224 Park Ave., Florham Park, NJ 07932
Goff Corporation, One Pleasant Grove Rd., Seminole, OK 74868

BOILERS—Tube Cleaning

Clayton Manufacturing Company, 486 No. Temple City Blvd., El Monte, CA 91731
Combustion Engineering, Inc., Windsor, Connecticut 06095
A.B. Murray Company, Inc., P.O. Box 476, Elizabeth, NJ 07207

BROKERS

Aldenships, 2182 S.E. 17th Street, Fort Lauderdale, FL 33316
B.R.I. Coverage Corporation, 156 Williams Street, New York, NY 10038
Capt. Astad Company, Inc., P.O. Box 53434, New Orleans, La. 70153
Hughes Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
Mowbray's Tug and Barge Sales Corp., 21 West St., N.Y., N.Y. 10006

BUNKERING SERVICE

Belcher Company, Inc., 8700 West Flagler, P.O. Box 525500, Miami, FL 33152
Gulf Oil Trading Co., 1290 Ave. of the Americas, N.Y., N.Y. 10019

CARGO TRANSFER & ACCESS EQUIPMENT

MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016

CHAINS

Neptunia, Via Giovanni da Verrazzano, 12 16 165 Genova, Italy

CHOCKING SYSTEMS

Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Philadelphia Resins Corp., 20 Commerce Drive, Montgomeryville, Pa. 18936

CONTAINERS—Cargo Container Handling

Paceca Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

CONTROL SYSTEMS—Monitoring

Arnesen Marine Systems, Inc., One Battery Plaza, New York, NY 10004
Henschel Corporation, 14 Cedar St., Amesbury, Mass. 01913
Megasystems, Inc., 1075 N.W. 58th Street, Boca Raton, FL 33443
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Pan American Systems Corporation, P.O. Drawer 400, Belle Chasse, LA 70037
Sperry Marine Systems Div., Charlottesville, Va., 22901, Division of Sperry Rand Corp.
Transamerica Delaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062

COUPLINGS

Bird-Johnson Co., 110 Norfolk St., Walpole, MA 02081

CRANES—HOISTS—DERRICKS—WHIRLEYS

American Hoist & Derrick Company (AMHoist), St. Paul, MN 55107
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
M. P. Hawlett, Inc., 410 32nd St., Union City, N.J. 07087
National Supply Company, 1455 West Loop South, Houston, TX 77027
J. D. Neuhaus, Witten-Heven, Hebezeuge, D 5810 Witten-Heven, West Germany
Paceca Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501

DECK MACHINERY—Cargo Handling Equipment

Markey Machinery Co., Inc., 79 S. Horton St., Seattle, Wash. 98134
Navire Cargo Gear (SEA) Pte. Ltd., 9th Floor Orchard Towers, Orchard Road, Singapore 0923

DIESEL ACCESSORIES—CYLINDER LINERS

B & W Marine Service, One State Street Plaza, New York, N.Y. 10004

General Thermodynamics Corporation, 210 South Meadow Road, P.O. Box 1105, Plymouth, Massachusetts 02360
Golfen Marine Company, Inc., 162 Van Brunt Street, Brooklyn, NY 11231

Haynes Corporation, P.O. Box 179, Jackson, MI 49204

Twin Disc, Inc., 1328 Racine Street, Racine, WI 53403

ELECTRICAL EQUIPMENT

Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Federal Pacific Electric Company, P.O. Box 1800, Somerville, NJ 08876
Marine Safe Electronics of Canada Ltd., 101 Jardin Dr., Suite 24, Concord, Ontario, Canada L4K 1B6
Oceanic Electrical Mfg. Co., Inc., 159 Perry Street, N.Y. 10014
Port Electric Supply, 157 Perry Street, N.Y., N.Y. 10014
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

EMULSIFICATION SYSTEMS

Cleanodan A.S., N. American Agents, American United Marine Corp., 5 Broadway, Route 1, Saugus, MA 01906
Hoffert Manufacturing Company, Inc., 1700 East Church Street, Jacksonville, FL 32202

EQUIPMENT—Marine

ATCO Marine Corp., 603 Dean Street, Brooklyn, NY 11238
Argo Marine, Div. of Argo Intl., 140 Franklin St., New York, N.Y. 10013
Comet Marine Supply Corp., 157 Perry St., New York, N.Y. 10014
Conhagen/USMP Company, Inc., 4475 South Clinton Ave., South Plainfield, NJ 07080
Consafe Inc., P.O. Box 40339, Houston, TX 77040
Duraline, 75 Hoffman Lane, Central Islip, NY 11722
Kearfott Marine Products, 550 South Fulton Ave., Mount Vernon, N.Y. 10550
J. H. Menge & Company, Inc., P. O. Box 23602, New Orleans, La.
John P. Nissen, Jr. Company, Glenside, PA 19038
Rockwell International, Power Tool Division, 400 N. Lexington Ave., Pittsburgh, PA 15208
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080
Schwepper Beschlag GmbH, Postfach 101110, 5620 Velbert 1, West Germany
Stal Laval Inc., 525 Executive Blvd., Elmsford, NY 10523
Sudaimport, 5 Kalyaevskaya, Moscow K-6, USSR
Unitor Ships Service A/S, Mastemyr, 1410 Kolbotn, Norway
Waukesha Bearings Corp., P.O. Box 798, Waukesha, Wisc. 53186
Xorbox, Division of Greene & Kellogg, Inc., 290 Creekside Dr., Tonawanda, NY 14150
Zesco, Inc., 3694 Westchase Drive, Houston, TX 77042

EVAPORATORS

Aqua-Chem Inc., P.O. Box 421, Milwaukee, WI 53201
Riley Baird, Inc., P.O. Box 1115, Shreveport, La. 71130

EXPANDED METALS—METALS

Fibergrate Corporation, P.O. Box 344610, Dallas, TX 75234
Lukens Steel Company, Coatesville, PA 19320
Millard Controlled Metals, 5 Louise Drive, Ivyland, PA 18974

FANS—VENTILATORS—BLOWERS—HEATEXCHANGERS

Hartzell Propeller Fan Company, 901 S. Downing Street, Piqua, OH 45356
Joy Manufacturing Co., 338 So. Broadway, New Philadelphia, Ohio 44663
Zidell Explorations, 3121 S.W. Moody St., Portland, Ore. 97201

FENDERING SYSTEMS—Dock & Vessel

Hughes Bros., Inc., 17 Battery Place, New York, N.Y. 10004
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062
Seaward International, Inc., 6269 Leesburg Ave., Falls Church, Va. 22044

FINANCING—Leasing

Continental Illinois National Bank, 231 S. LaSalle, Chicago, IL 60693
Kidder, Peabody & Co., Inc., 10 Hanover Square, New York, N.Y. 10005
Warburg Paribas Becker, Inc., 2 First National Plaza, Chicago, Ill. 60670

FUEL OIL ADDITIVES—Analysis & Combustion Testing

Ralfite Products Inc., 300 Broad Street, Stamford, CT 06901
XRG International, Inc., 4125 S.W. Martin Hwy., Stuart, FL 33494

FURNITURE

Bailey Joiner Co., Inc., 74 Sullivan Street, Brooklyn, N.Y. 11231
Comfort-Mate, Inc., 7988 NW 56th Street, Miami, FL 33166

GALLEY EQUIPMENT

Kiefer Corporation, 2202 W. Clybourn, Milwaukee, WI 53233

GANGWAYS

Rompmaster Inc., 1226 N.W. 23rd Ave., Fort Lauderdale, Fla. 33311
W & A Engineers, Inc., 4040 Veterans Highway, Metairie, LA 70002

HATCH & DECK COVERS—Chain Pipe

Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Lockstad Company, Inc., R D 2 Burnett Road, Mendham, NJ 07945
MacGregor-Comarain, Inc., 135 Dermody St., Cranford, N.J. 07016
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
E. Mock & Sons, Inc., 20 Vesey Street, New York, NY 10017

HULL CLEANING

Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
Phosmarin Equipment, 21, Boulevard de Paris, 13002 Marseille, France
Seaward Marine Services, Inc., 6269 Leesburg Pike, Falls Church, VA 22044
Sub Enterprises, Inc., P.O. Box 16531, Irvine, CA 92713

HYDRAULICS

Fluid Technology, Inc., 10626 Phillips Highway, Jacksonville, FL 32224
Hydranautics, 6338 Lindmar Drive, Goleta, CA 93017
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229

INERT GAS—Generators—Systems

ATCO Marine Corporation, 603 Dean St., Brooklyn, NY 11238
Camar Corporation, P.O. Box 460, Worcester, MA 01613
Foster Wheeler Boiler Corp., 110 So. Orange Ave., Livingston, N.J. 07039
Fredrikstad mek. Verksted, N. American Agents, American United Marine Corp., 575 Madison Ave., New York, N.Y. 10022
Peabody Holmes Ltd., 17-27 Garratt Lane, London SW 18 4BY

INSULATION—Cloth, Fiberglass

Bailey Carpenter & Insulation Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231

INSURANCE

Adams & Porter, 1819 St. James Place, Houston, Texas 77027
Adams & Porter, 1 World Trade Center, Suite 8433, New York, N.Y. 10048
Alexander & Alexander, Inc., 1185 Ave. of the Americas, New York, N.Y. 10036
B.R.I. Coverage Corporation, 156 Williams St., New York, NY 10038
Midland Insurance Co., 160 Water St., New York, N.Y. 10038

JOINER—Watertight Doors—Paneling

Masonite Commercial Division, Dover, OH 44622
Walz & Krenzer, Inc., 400 Trabold Road, Rochester, NY 14624

KEEL COOLERS

R.W. Fernstrum & Co., 1716 Eleventh Ave., Menominee, MI 49858
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

LIFEBOATS & DAVITS

ATCO Marine Corporation, 603 Dean Street, Brooklyn, NY 11238
Schat Davit Corporation, 226 West Park Place, Newark, DE 19711

LIGHTING EQUIPMENT—Lamps, Fixtures, Searchlights

Browning Marine, Inc., (Aqua Signal), P.O. Box 806G, St. Charles, IL 60174
The Guest Corporation, 17 Culbra Drive, West Hartford, CT 06110
Oceanic Electrical Mfg. Co., 157 Perry Street, New York, N.Y. 10014
Oreck Corp., 100 Plantation Rd., New Orleans, LA 70123
Perko Inc., P.O. Box 6400D, Miami, Florida 33164
Port Electric Supply Corp., 157 Perry Street, New York, N.Y. 10014

MACHINE TOOLS

Republic-Lagun Machine Tool Co., 1000 E. Carson St., Carson, CA 90749

MACHINERY MAINTENANCE, REPAIR, OVERHAUL, AND TESTING

General Electric Company—Bldg. 2, Rm 216, Schenectady, N.Y. 12345
Schnitzer-Levin Marine Co., 445 Littlefield Ave., So. San Francisco, CA 94080

MOORING SYSTEMS

Baldt Incorporated, P.O. Box 350, Chester, PA 19016
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

NAME PLATES—PLAQUES—BRONZE—ALUMINUM

Duramax Metals, Inc., 2401 Wesley Street, Portsmouth, VA 23707

NAVAL ARCHITECTS, MARINE ENGINEERS, SURVEYORS

Advanced Marine Enterprises, Inc., 1725 Jefferson Davis Highway (Suite 1300), Arlington, VA 22202
Agemar, Ave. 17 No. 108-129, P.O. Box 1465, Maracaibo, Venezuela
All Points Associates, Inc., RD #1, Box 3309, Monroeville, OH 44847
American Standards Testing Bureau, Inc., 40 Water Street, New York, N.Y. 10004
Amirikian Engineering Co., Chevy Chase Center Bldg., Suite 505, 35 Wisconsin Circle, Chevy Chase, Md. 20015
J.L. Bludworth, P.O. Box 2441, Corpus Christi, TX 78403
Jacksonville, Florida 32211
Del Breit Inc., 326 Picayune Place (Suite 201), New Orleans, LA 70130
C.D.I. Marine Co., Regency East, Suite 222, 9951 Atlantic Blvd., CTS & Associates, 11320 S.W. 108 Court, Miami, Fla. 33176
CADCOM, 107 Ridgely Ave., Annapolis, MD 21401
Childs Engineering Corp., Box 333, Medfield, Mass. 02052
John P. Colletti & Associates, P.O. Box 13378, Pittsburgh, PA 15243
Columbia-Sentinel Engineers Western, Inc., P.O. Box 21542, Seattle, WA 98111
Crandall Dry Dock Engrs., Inc., 21 Pottery Lane, Dedham, Mass. 02026

Crane Consultants Inc., 15301 1st Ave., So. Seattle, Washington 98148
C.R. Cushing & Co., Inc., One World Trade Center, New York, N.Y. 10048
Norman N. DeJong & Associates, Inc., 1734 Emerson St., Jacksonville, Fla. 32207
Design Associates Inc., 14360 Chef Menteur Highway, New Orleans, LA 70129

Designers & Planners, Inc., 2341 Jefferson Davis Hwy., Suite 1100, Century Bldg., Arlington, VA 22202
Donhaiser Marine, Inc., 11511 Katy Freeway, Houston, TX 77079
Francis C. Ducote, P.E., P.O. Box 644, Kenner, LA 70063
Parker C. Emerson & Associates, 17935 Cardinal Drive, Lake Oswego, Oregon 97034

Christopher J. Foster, Inc., 16 Sinksink Drive East, Port Washington, N.Y. 11050

Friede and Goldman, Ltd., 225 Baronne St., New Orleans, La. 70112

Giannotti & Associates, Inc., 703 Giddings Ave., Suite U-3, Annapolis, MD 21401

Gibbs & Cox, Inc., 40 Rector Street, New York, N.Y. 10006

John W. Gilbert Associates, Inc., 58 Commercial Wharf, Boston, Mass. 02110

The Glostien Associates, Inc., 610 Colman Bldg., 811 First Ave., Seattle, WA 98104

Phillip Gresser Associates, Ltd., 3250 South Ocean Blvd., Palm Beach, FL 33480

Morris Guralnick Associates, Inc., 620 Folsom Street, Suite 300, San Francisco, CA 94107

Hampton Roads Engineering, Inc., 119 E. Little Creek Rd., Norfolk, VA 23505

J.J. Henry Co., Inc., Two World Trade Center—Suite 9528, New York, N.Y. 10048

Hoffman Maritime Consultants Inc., 9 Glen Head Road, Glen Head, NY 11545

Hydranautics, Incorporated, 7210 Pindell School Road, Howard County, Laurel, Maryland 20810

Juntzen Engineering Co., 6655-H Amberton Drive, Baltimore, Md. 21227

James S. Krogen & Co., Inc., 3333 Rice St., Miami, Fla. 33133

Littleton Research and Engrg. Corp., 95 Russell St., Littleton, Mass. 01460

Lucander Designs, P.O. Box 711, San Perlita, TX 78590

Alan C. McClure Associates, Inc., 2600 South Gessner, Houston, TX 77063

John J. McMullen Associates, Inc., 1 World Trade Center, New York, N.Y. 10048

MacClear & Harris, Inc., 28 West 44 Street, New York, N.Y. 10036

Marine Consultants & Designers, Inc., 308 Investment Insurance Bldg., Corner E. 6th St. & Rockwell Ave., Cleveland, Ohio 44114

Marine Design Inc., 401 Broad Hollow Road, Rte. 110, Melville, N.Y. 11746

Marine Technical Associates, Inc., 195 Paterson Avenue, Little Falls, NJ 07424

Maritime Service Company, 1357 Rosecrans St., Suite B, San Diego, CA 92106

Rudolph F. Matzer & Associates, Inc., 13891 Atlantic Blvd., Jacksonville, Fla. 32225

Mechanical Resources Inc., 191 Cambridge Avenue, Jersey City, N.J. 07307

George E. Meese, 194 Acton Rd., Annapolis, Md. 21403

Metrilape, Inc., 33 Bradford Street, Concord, MA 01742

NKF Engineering Assoc., Inc., 8150 Leesburg Pike, Vienna, VA 22202

Nelson & Associates, Inc., 1405 N.W. 167th Street, Miami, FL 33169

Nickum & Spaulding Associates, Inc., 911 Western Ave., Seattle, WA 98104

Captain Conrad P. Nilsen, 66 Beverly Road, Bloomfield, NJ 07003

Norgaard and Clark, 114 Sansome St., San Francisco, CA 94104

Ocean-Oil International Engineering Corporation, 3019 Mercedes Blvd., New Orleans, La. 70114

Offshore Power Systems, 8000 Arlington Expressway, Jacksonville, FL 32211

Oromar International Enterprises, Inc., P.O. Box 13069, Port Everglades, FL 33316

PRC Guralnick, 5252 Balboa Ave., San Diego, CA 92117

Pacific Industries Inc., 1440 Canal Street, Suite 1915, New Orleans, LA 70112

Pearlson Engineering Co., Inc., 8970 S.W. 87th Ct., Miami, Florida 33156

S.L. Petchul, Inc., 1380 SW 57th Ave., Fort Lauderdale, Fla. 33317

Pilotage Consultants, Inc., P.O. Box 3, Atlantic Highlands, NJ 07716

M. Rosenblatt & Son, Inc., 350 Broadway, New York, N.Y. 10013 and 657 Mission St., San Francisco, Calif.

Sargent & Herkes, Inc., 611 Gravier St., New Orleans, La. 70130

Schmahl and Schmahl, Inc., 1209 S.E. Third Ave., Fort Lauderdale, Florida 33316

Seacor Systems Engineering Associates, Corp., P.O. Box 2030, 19 Cherry Hill Industrial Park, Perina Blvd., Cherry Hill, NJ 08003

Seaworthy Engine Systems, 36 Main Street, Essex, CT 06426

George G. Sharp, Inc., 100 Church St., New York, N.Y. 10007

T. W. Spaetgens, 156 West 8th Ave., Vancouver, Canada V5Y 1N2

R.A. Stearn, Inc., 253 N. 1st Ave., Sturgeon Bay, WI 54235

Robert L. Stevens Associates, Inc., 654 Beacon Street, Boston, MA 02215

Richard R. Taubler Inc., 8 Columbia St., Milford, Del. 19963

Navidyne Corp., 11824 Fishing Point Drive, Newport News, VA 23606
Navigation Communications Systems, Inc., 20100 Plummer Street, Chatsworth, CA 91311
North American Philips Communication Corp., 55 Knights Bridge Road, Piscataway, NJ 08854
RCA Service Co., Building 204-2, Camden, N.J. 08101
Racal-Decca Marine, Inc., P.O. Box G, #1 Commerce Blvd., Palm Coast, FL 32037
Racal-Decca Marine, Inc., 4200 23rd Avenue West, Seattle, WA 98199
Radar Devices, Inc., 2955 Merced Street, San Leandro, CA 94577
Raytheon Marine Co., 676 Island Pond Road, Manchester, N.H. 03103
Raytheon Ocean Systems Company, Westminster Park, Risho Avenue, East Providence, RI 02914
Raytheon Service Co., 103 Roesler Rd., Glen Burnie, MD 21061
Simrad Inc., 1 Labriola Court, Armonk, N.Y. 10504
Southern Marine Research, Inc., 1401 N.W. 89th Court, Miami, FL 33172
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.
Tracor, Inc., Industrial Products Div., 6500 Tracor Lane, Austin, Texas 78721

OILS—Marine—Additives
B. P. Marine North America Trading, Plaza 9, 900 Route 9, Woodbridge, NJ 07095
Ferrous Corporation, P.O. Box 1764, Bellevue, WA 98009
Gulf Oil Company—U.S. (Domestic Oils), 909 Fannin Street, Houston, TX 77001
Gulf Oil Trading Co., 1290 Ave. of Americas, New York, N.Y. 10019
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002
Mobil Oil Corporation, 150 East 42nd St., New York, N.Y. 10017
Texaco, Inc. (International Marine), 135 East 42nd St., N.Y., N.Y. 10017

OIL/WATER SEPARATORS
Alfa-Laval, Inc., 2115 Linwood Avenue, Ft. Lee, NJ 07024
Butterworth Systems Inc., 224 Park Ave., Florham Park, N.J. 07932
National Marine Service, Inc., 1750 Brentwood Blvd., St. Louis, MO 63144
Sigma Treatment Systems, Merry Meadows, RD 1 Box 70, Chester Springs, PA 19425

PAINTS—COATINGS—CORROSION CONTROL
American Abrasive Metals, 460 Coit Street, Irvington, NJ 07111
Ameron, 4700 Ramona Blvd., Monterey Park, CA 91754
"CONSOL" manufactured by Hanline Bros., Inc., 1400 Warner St., Baltimore, MD 21230
Devoe Marine Coatings Co., P.O. Box 7600 Louisville, KY 40207
E.I. DuPont de Nemours & Co., Inc., Nemours Bldg. Rm. N-2504-2, Wilmington, DE 19898
Eureka Chemical Company, 234 Lawrence Ave., So. San Francisco, CA 94080
Hankel Corporation, 4620 West 77th Street, Minneapolis, MN 55435
International Paint Co., 17 Battery Place North, Suite 1150, New York, N.Y. 10004
Jotun-Baltimore Copper Paint Co., 840 Key Highway, Baltimore, MD 21230
Mobay Chemical Corporation, Plastics & Coatings Div., Pittsburgh, PA 15205
Mobil Chemical Co., Maintenance & Marine Coatings Dept., P.O. Box 250, Edison, N.J. 08817
Palmer Products Inc., P.O. Box 8, Worcester, PA 19490
Selby, Battersby & Company, 5220 Whiby Avenue, Philadelphia, PA 19143

PETROLEUM SUPPLIES
Houston Marine Services, Inc., 505 Atrium One, 11811 1-10 East, Houston, TX 77029
Shell Oil Co., 1 Shell Plaza, Houston, Texas 77002

PIPE-HOSE—Cargo Transfer, Clamps, Couplings, Coatings
Camlock Flange Sales Corp., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
CUNICO Corp., Cooney Pipe & Copper Works Div., 214 N. Hawaiian Ave., Wilmington, CA 90748
Hydro-Craft, Inc., 4223 Edgeland, Royal Oak, Mich. 48073
Kubota Ltd., 2-47, Shikit Suhigashi 1-Chome, Naniwa-Ku, Osaka 556-91, Japan
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Sanchem, Inc., 1600 South Canal Street, Chicago, IL 60616
Tioga Pipe & Supply Company, 2450 Wheatshaf Lane, Philadelphia, PA 19137

PLASTICS—Marine Applications
Hubeva Marine Plastics, Inc., 390 Hamilton Ave., Bklyn, N.Y. 11231

PROPULSION EQUIPMENT—Bowthrusters, Diesel Engines, Gears, Propellers, Shafts, Turbines
Alco Power Inc., 100 Orchard St., Auburn, N.Y. 13021
Armco Steel/Advanced Materials Div., 703 Curtis St., Middletown, OH 45043
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bird Johnson Company, 110 Norfolk St., Walpole, Mass. 02081
Burmeister & Wain Alpha Diesel AS, DK-1400 Copenhagen K, Denmark
Centrico, Inc., 100 Fairway Court, Northvale, NJ 07647
Colt Industries' Fairbanks Morse Engine Division, Beloit, Wisc. 53511
Combustion Engineering, Inc., Windsor, Connecticut 06095
General Electric Co., Diesel Power Products, 2901 E. Lake Rd., Erie, PA 16531
Kawasaki Heavy Industries, Ltd., 2-4-1 Hamamtsu-cho, Minato-ku, Tokyo, Japan
Krupp Mak Diesels, Inc., 9701 West Higgins Road, Rosemont, IL 60018
MTU of North America, Inc., 10450 Corporate Drive, Sugar Land, TX 77478
Maritime Industries, Ltd., 6307 Laurel St., Burnaby, B.C. Canada V5B 3B3
Michigan Wheel, 1501 Buchanan Ave., S.W., Grand Rapids, MI 49507
Omnithruster Inc., 15418 Cornet Ave., Santa Fe Springs, CA 90670
Oosterhuis Industries, Inc. (Marine Engineering, Inc.), P.O. Box 30587, New Orleans, LA 70190
P.J. Plishner Marine, 2 Lake Avenue Ext., Danbury, CT 06810
Port Electric Turbine Div., 155-157 Perry St., New York, N.Y. 10014
Propulsion Systems Inc., 21213 76th Ave., So., Kent, WA 98031
Schattel of America, Inc., 8375 N.W. 56 Street, Miami, Fla. 33166
Skinner Engine Company, P.O. Box 1149, Erie, PA 16512
Steamco Corporation, 1020 East 8th Street, Jacksonville, FL 32206
Tacoma Boat Co./Escher Wyss, 1840 Marine View Dr., Tacoma, WA 98422
Transamerica DeLaval Inc., Engine & Compressor Div., 550 85th Ave., Oakland, CA 94621
Transamerica DeLaval, Inc., Turbine & Compressor Div., P.O. Box 8788, Trenton, N.J. 08650
Turbine Specialties, Inc., P. O. Box 207, West State Street Road, Salina, KS 67401
Voith Schneider of America—U.S. Agent: Eli Sharprut, 347 Evelyn St., Paramis, N.J. 07652
Waukesha Engine Division, Waukesha, WI 53187

PUMPS—Repairs—Drives
Barco Corporation, 16 Bahama Circle, Tampa, FL 36606
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Transamerica DeLaval, IMO Pump Division, P.O. Box 447, Monroe, NC 28110
Worthington Group-McGraw Edison Co., 270 Sheffield Street, Mountainside, NJ 07092

REFRIGERATION—Refrigerant Valves
Bailey Refrigeration Co., Inc., 74 Sullivan St., Brooklyn, N.Y. 11231
Port Refrigeration Div., 157 Perry Street, New York, N.Y. 10014

ROPE—Manila—Nylon—Hawsers—Fibers
American Mfg. Co., Inc., Willow Avenue, Honesdale, Pa. 18431
Atlantic Cordage Corp., 60 Grant Avenue, Carteret, NJ 07008
Samson Ocean Systems, Inc., 99 High Street, Boston, Mass. 02110

RUDDER ANGLE INDICATORS
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Hose McCann Telephone Co., Inc., 524 W. 23rd St., N.Y. 10011
Modular Systems, 164 Franklin Avenue, Rockaway, NJ 07866
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SAFETY EQUIPMENT
ACR Electronics, Inc., 3901 North 29th Avenue, Hollywood, FL 33020
Datrex, 3795 N.W. 25th Street, Miami, FL 33142

SANITATION DEVICES—Pollution Control
American United Marine Corp., 575 Madison Avenue, New York, NY 10022
Argo Marine Pollution Systems Division, 140 Franklin St., New York, N.Y. 10013
Chapman Engineers (Omnipure Division), 6101 Southwest Freeway, Suite 100, Houston, TX 77057
Effluent Technology Corporation, P.O. Box 2094, Tacoma, WA 98401
Envirovac (Division of Dometic Inc.), 1260 Turret Drive, Rockford, IL 61111
Marine Moisture Control Co., Inc., 449 Sheridan Blvd., Inwood, L.I., N.Y. 11696
Marland Environmental Systems, Inc., N. Main Street, Walworth, WI 53184
Microphor, Inc., P.O. Box 490, Willits, CA 95490
Red Fox Industries, P.O. Drawer 640, New Iberia, LA 70560
St. Louis Ship FAST Sewage Systems, 611 East Marceau St., St. Louis, Mo. 63111
Somat Corporation, Pomeroy, PA 19367

SCAFFOLDING EQUIPMENT—Work Platforms
Patent Scaffolding Co., 2125 Center Ave., Fort Lee, N.J. 07024

SHACKLES
West Footscray Engineering Works P/L, 52 Cross Street, West Footscray, Melbourne, Victoria, 30 12, Australia

SHAFT SEALS, REVOLUTION INDICATOR EQUIPMENT
Bird-Johnson Co., 100 Norfolk St., Walpole, MA 02081
Electric Tachometer Corp., 68th & Upland St., Philadelphia, Pa. 19142
Henschel Corp., 14 Cedar St., Amesbury, Mass. 01913
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030

SHIPBREAKING—Salvage
The Boston Metals Co., 313 E. Baltimore St., Baltimore, Md. 21202
Zidell Explorations, Inc., 3121 S.W. Moody St., Portland, Ore. 97201

SHIPBUILDING STEEL
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004

SHIPBUILDING—Repairs, Maintenance, Drydocking
A.D.M. (Amsterdam Drydock Mfg.), Moatschappij bv, P.O. Box 3006, 1003 AA, Amsterdam, Holland
AMT, Inc., 2400 N.W. 39th Avenue, Miami, FL 33142
Asmar Shipyards Co., Astilleros y Maestranzas de la Armada, Prat 856, Piso 14, Casilla 150-V, Valpariso, Chile, S.A.
Astilleros Espanoles S.A., 17 Padilla, P.O. Box 815, Madrid, Spain
Astilleros Unidos de Veracruz, S.A., San Juan de Ulua S/N, Apdo. Postal 647, Veracruz, Ver., Mexico
Atlantic Marine Inc., P.O. Box 138 Ft. George Island, Jacksonville, FL 32226
Avondale Shipyards, Inc., P.O. Box 52080, New Orleans, La. 70150
Bay Shipbuilding Corporation, 605 North Third Avenue, Sturgeon Bay, WI 54235
Bender Shipbuilding & Repair, P.O. Box 42, Mobile, AL 36601
Bergerson Industries Inc., P.O. Box 38, St. Bernard, La. 70085
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
Blohm & Voss Company, 55 Morris Avenue, Springfield, NJ 07081
Bludworth Bond Shipyard Inc., P.O. Box 5065, Houston, TX 77012
Boeing Marine Systems, P.O. Box 3707, Mail Stop 14-11, Seattle, WA 98124
Cantieri Navali Riuniti, Via Cipro, 11, 16100 Genova, Italy
Carrington Slipways Pty, Ltd., Old Punt Road, Tomago, N.S.W., Australia 2322
Centromor, One World Trade Center, Suite 3557, New York, N.Y. 10048
China Shipbuilding Corp., c/o Allegro Transportation Supply Co., One Penn Plaza, Room 1606, New York, NY 10119
Conrad Industries, P.O. Box 790, Morgan City, La. 70380
Curacao Drydock Company Inc., 26 Broadway, Suite 741, New York, NY 10004
Dorbyl Ltd., Military Road, 1 Industrial Sites, West Bank, 5201 East London Republic of South Africa
Dravo Steelship Corp., R.4, Box 167, Pine Bluff, Ark. 71602
FMC Corp., Marine & Rail Equipment Div., 4700 N.W. Front Ave., Portland, Oregon 97208
Galveston Shipbuilding Co., P.O. Drawer 2660, Galveston, TX 77553
HBC Barge, Inc., Grant Building, Pittsburgh, PA 15219
Halifax Industries Ltd., P.O. Box 1477, Halifax, Nova Scotia, Canada, B3K 5H7
Halter Marine, Inc., P.O. Box 29266, New Orleans, La. 70189
Havre de Grace, Havre de Grace, Md.
Hitachi Shipbuilding & Engrg. Co., Ltd., 47 Edobori 1-Chome, Nishi-Ku, Osaka, Japan
Hong Kong United Dockyards Ltd., P.O. Box 534, Kowloon Central Post Office, Kowloon, Hong Kong
Hudson Shipbuilders, Inc., P.O. Box Q, Pascagoula, MS 39567
Jeffboat, Inc., Jeffersonville, Ind. 47130
Levingston Shipbuilding, P.O. Box 968, Orange, TX 77630
Lockheed Shipbuilding and Construction Co., 2929 16th Avenue, S.W., Seattle, Wash. 98134
McDermott Incorporated, 1010 Common Street, New Orleans, LA 70160
MacGregor Land & Sea, Inc., 135 Dermody Street, Cranford, NJ 07016
Marine Fabricators, P.O. Box 246, Green Cove Springs, FL 32043
Matton Shipyard Co., Inc., P.O. Box 645, Cohoes, New York 12047
Midland Marine Corporation, One Pennsylvania Plaza, New York, NY 10001
Misener Industries, Inc., 5353 Tyson Avenue, P.O. Box 13625, Tampa, Fla. 33681
Monark Boat Co., P.O. Box 210, Monticello, Ark. 71655
Nashville Bridge Company, P.O. Box 239, Nashville, TN 37202
National Steel & Shipbuilding Corp., San Diego, Calif. 92112
Newpark Shipbuilding & Repair, P.O. Box 5426, Houston, TX 77012
Newport News Shipbuilding & Dry Dock Co., 4101 Washington Ave., Newport News, Va. 23607
O.A.R.N. (Officine Allestimento-Riprazioni Navi), P.O. Box 1395, Genoa, Italy 16100
Paceco Inc. (A division of Fruehauf), West Seaway Access Road, Gulfport, MS 39501
Pearlson Engineering Co., P.O. Box 8, Kendall Branch, Miami, Fla. 33156
Port Allen Marine Service, Inc., P.O. Box 108, Port Allen, LA 70767
Progressive Shipbuilders & Fabricators, Inc., P.O. Box 9130, Houma, LA 70361

Promet (PTE) Ltd., 27 Pandam Rd., Jurong Industrial Estate, Singapore 22
St. Louis Shipbuilding—Federal Barge, Inc., 611 East Marceau, St. Louis, Mo. 63111
Savannah Shipyard Co., P.O. Box 787, Savannah, GA 31402
Southwest Marine, Inc., P.O. Box 13308, San Diego, Ca 92113
Sudoimport, 5 Kalyaevskaya, Moscow K-6, USSR
Sun Ship Inc., Chester, PA 19013
Swiftships Inc., P.O. Box 1908, Morgan City, LA 70380
Tacoma Boatbuilding Co., Inc., 1840 Marine View Drive, Tacoma, WA 98422
Tandanor (Piacentini), Antartida Argentina 555 Darsena Norte, (1104) Buenos Aires-Republica Argentina
Thomas Marine Inc., 37 Bransford Street, Patchogue, NY 11772
Todd Shipyards Corp., 1 State St. Plaza, New York, N.Y. 10004
Total Transportation Systems Inc., 813 Forest Dr., Newport News, VA 23606
Total Transportation Systems (International) A/S, Bjornegarden, P.O. Box 28, N5201 Oslo, Norway
Tracor Marine, P.O. Box 13107, Port Everglades, Fla. 33316
Tug Barge Systems, Inc., subsidiary of Ingram Corp., 4100 One Shell Square, New Orleans, La. 70139
Union Dry Dock & Repair Co., Foot of Pershing Road, Weehawken, N.J. 07087
West Coast Salvage And Contracting, 2150 East Kent Avenue, Vancouver, B.C. V5P 2T2

SHIPPING—PACKING
Candia Shipping (USA) Inc., One World Trade Center, Suite 1611, New York, NY 10048
Crane Packing Co., 435 Regina Drive, Clarksburg, MD 20734

SHIP STABILIZERS
Sperry Marine Systems Div., Charlottesville, Va. 22901, Division of Sperry Rand Corp.

SMOKE INDICATORS
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928

STUFFING BOXES
Johnson Rubber Co. (Marine Div.), 16025 Johnson St., Middlefield, Ohio 44062

SURVEYORS AND CONSULTANTS
Francis B. Crocco, Inc., P.O. Box 1411, San Juan, Puerto Rico 00903
Hull & Cargo Surveyors, Inc., 99 John St., New York, NY 10038

TANK CLEANING
Butterworth Systems Inc., 224 Park Ave., P.O. Box 352, Florham Park, N.J. 07932
Environmental Chemicals, Inc., 487 Division Street, Boonton, NJ 07005
Penco Division/Hudson Engineering Co., 1114 Clinton St., Hoboken, N.J. 07030
Salwico, Inc., 5 Marine View Plaza, Hoboken, NJ 07030

TANK LEVELING INDICATORS
Transamerica DeLaval, Inc., Gems Sensors Division, Cowles Road, Plainville, CT 06062
Vitronics, P.O. Box 42305, Houston, TX 77042
Vu-Gage System, 150 E. 42nd St. (Room 910), New York, NY 10017

TERMINALS—Oil-Transfer
Caicos Petroleum Services Div., Federal Chicago Corp., 2222 North Elston Avenue, Chicago, IL 60614

TOWING—Barges, Vessel Chartering, Lighterage, Salvage, etc.
Bay-Houston Towing Co., 805 World Trade Bldg., Houston, Texas 77002
Chotin Transportation, Inc., 580 Walnut St., Cincinnati, Ohio 45202
Curtis Bay Towing Co., Mercantile Bldg., Baltimore, Md. 21202
Henry Gillen's Sons Lighterage, 21 West Main St., Oyster Bay, N.Y. 11771
Great Lakes Towing Company, 1800 Terminal Tower, Cleveland, OH 44113
Gulf Fleet Marine Corporation, Canal Place One, Suite 2400, New Orleans, LA 70130
James Hughes, Inc., 17 Battery Pl., New York, N.Y. 10004
McAllister Bros., Inc., 17 Battery Pl., New York, N.Y. 10004
McDonough Marine Service, P.O. Box 26206, New Orleans, La.
Moran Towing & Transportation Co., Inc., One World Trade Center, Suite 5335, New York, N.Y. 10048
Ocean Salvors Company, One World Trade Center, New York, NY 10048
Smit International (Americas) Inc., 17 Battery Place, New York, NY 10004
Suderman & Young Co., Inc., 918 World Trade Bldg., Houston, Texas 77002
Turecamo Coastal & Harbor Towing Corp., One Edgewater St., Clifton, Staten Island, N.Y. 10305

TRAINING SERVICES—Simulator
Ship Analytics, Park Circle, Centerport, NY 11721

VALVES AND FITTINGS
American United Marine, 575 Madison Avenue, New York, NY 10022
Dover Corporation, Norris Division, P.O. Box 1739, Tulsa, OK 74101
Hayward Marine Products, 900 Fairmount Avenue, Elizabeth, NJ 07207
Marine Moisture Control Co., 449 Sheridan Blvd., Inwood, N.Y. 11696
Marland Environmental Systems Inc., N. Main St., Walworth, WI 53184
Parker-Hannifin Corporation, 17325 Euclid Avenue, Cleveland, OH 44112
Voss, Inc., Building J, 7029 Huntley Road, Columbus, Ohio 43229
Robert H. Wager Co., Inc., Passaic Avenue, Chatham, N.J. 07928
Waukesha Bearings Corp., P.O. Box 798, Waukesha, WI 53186
Wine, Inc., 34655 Mills Road, North Ridgeville, OH 44039
Zidell Explorations, Inc. (Valve Division), 3121 S.W. Moody Avenue, Portland, OR 97201

WATER PURIFIERS
Everpure, Inc., 660 N. Blackhawk Dr., Westmont, IL 60559
Specific Equipment Company, P.O. Box 55626, Houston, TX 77055

WINCHES AND FAIRLEADERS
Markey Machinery Co., 79 South Horton St., Seattle, Washington 98134
Smith-Berger Manufacturing Corporation, 3236 16th Avenue S.W., Seattle, WA 98134
Superior-Lidgerwood-Mundy Corp., 1101 John Avenue, Superior, WI 54880

WINDOWS
Kearfott Marine Products, A Singer Co., 550 South Fulton Avenue, Mt. Vernon, N.Y. 10550

WIRE AND CABLE
Anixter Bros., Inc., 4711 Golf Road, One Concourse Plaza, Skokie, Illinois 60076
Seacoast Electric Supply Corp., 225 Passaic St., Passaic, NJ 07055
Seacoast Electric Supply Corp., 1505 Oliver St., Houston, TX 77007

WIRE ROPE—Slings
Armco Steel Corp., 703 Curtis St., Middletown, Ohio 45042
Bethlehem Steel Corp., One State Street Plaza, N.Y. 10004
A.L. Don Company, Foot of Dock Street, Matawan, NJ 07747

ZINC
Smith & McCracken, 153 Franklin St., New York, N.Y. 10013

This directory section is an editorial feature published in every issue for the convenience of the readers of MARITIME REPORTER/Engineering News. A quick-reference readers' guide, it includes the names and addresses of the world's leading manufacturers and suppliers of all types of marine machinery, equipment, supplies and services. A listing is provided, at no cost for one year in all 24 issues, only to companies with continuing advertising programs in this publication, whether an advertisement appears in every issue or not. Because it is an editorial service, unpaid and not part of the advertisers contract, MR/EN assumes no responsibility for errors. If you are interested in having your company listed in this Buyers Directory Section, contact John C. O'Malley at (212) 689-3266

U.S. SHIP CONSTRUCTION CONTRACTS

1 — MERCHANT VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Owner	Total No.	Type	Hull Nos.	Est. GT (Each)	Est. DWT (Each)	Est. HP (Each)	Est. Total Cost (\$Mil.)
Atlantic Marine	Blue Lines	1	Cargo	354	200	—	D-350	0.6
Avondale Shipyards	American President Lines	3	Container	2329-31	40,500	30,300	D-43,200	330.0
	Suwanee River	1	Tug/Barge	2327-8	16,000	41,300	D-18,200	37.7
	Ogden Marine	2	Products	2318-19	25,000	42,000	D-15,000	100.0
	Corps of Engineers	1	Dredge	2322	9,900	8,000	D-10,400	67.5
	United States Trust	1	Dredge	2332	—	9,980	D-13,800	40.0
	Exxon Company U.S.A.	3	Products	—	26,000	43,000	D-17,000	300.0
Bath Iron Works	Corps of Engineers	1	Dredge*	402	6,000	—	D-7,000	65.0
	Falcon I Sea Transport	2	Tanker	404-5	24,000	33,900	D-14,720	142.0
	Calif. & Hawaii Sugar	1	Barge*	406	21,000	37,000	—	25.0
Bay Shipbuilding	Beker Shipping	1	Bulk Barge	728	20,000	41,000	—	NA
	Ocean Barge	1	Bulk Barge	730	17,500	33,000	—	NA
Bethlehem-Sparrows Point	Artemis Marine	1	Tug/Barge	4652	32,000	47,000	D-18,200	52.6
	First-Fifth Tug/Barge	5	Tug/Barge	4653-7	32,000	47,000	D-18,200	266.0
Equitable Shipyards	City of New York	1	Ferry	1714	3,000	4,200	D-7,800	15.0
General Dynamics-Quincy	Coastwise Shipping	4	Tank Barge	73-75, 82	—	27,000	—	57.0
	New England Electric	1	Collier	—	23,500	36,000	T-12,000	60.0
	Watermanship Steamship	1	RO/RO-Cont.*	85	18,500	23,500	T-32,000	61.0
Levingston Shipbuilding	Asco Falcon I	2	Bulk	752-3	23,500	36,000	D-14,800	80.0
National Steel & SB	Union Oil	1	Products	417	24,500	37,500	T-13,000	50.0
	American Tankships	2**	Products	419-20	24,500	37,500	D-11,400	102.0
	American Trading Trans.	3	Products	424-6	27,000	44,000	D-11,400	153.0
Norfolk Shipbuilding	Coordinated Caribbean	1	Barge	34	4,000	6,680	—	21.2
Southern Shipbuilding	Great Lakes Dredge	1	Dredge	120	3,300	4,400	D-3,000	NA
Sun Ship, Inc.	Waterman Steamship	2	RO/RO-Cont.	679-80	18,500	23,500	T-32,000	137.5
Upper Peninsula SB	State of Michigan	1/4	Tug(1)/ Barge(4)	001-5	5,400	10,000	D-8,000	35.5
Wiley Manufacturing	Texas Gulf	1	Dredge	108	2,800	3,800	DE	NA

* Subcontracted from Sun Ship. ** Option for three additional sister ships.

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Owner	Name	Type	Delivery
Alabama Maritime	Diamond M	Diamond M. Hunter	Semisub.	11/81
Mobile, Ala.	"	Diamond M. Eagle	"	4/82
	"	Diamond M. Falcon	"	1/83
Baker Marine	Huthnance Dig.	Charger I	Jackup	10/81
Ingleside, Texas	Huthnance Dig.	Charger II	"	11/81
	Magnum Marine	Mr. Demp	"	11/81
	Magnum Marine	Robert N. Haskin	"	5/82
	Magnum Marine	Robert W. Womack	"	6/82
	Pool Offshore	Pool Offshore Rig 54	"	12/81
	Savage Drilling	Ponca	"	8/82
Bethlehem Steel	Griffin-Alexander	Griffin-Alexander V	Jackup	5/82
Beaumont, Texas	"	Griffin-Alexander VII	"	9/82
	"	Griffin-Alexander VIII	"	3/82
	Houtech Energy	Houtech II	"	3/82
	"	Houtech III	"	3/82
	"	Houtech IV	"	9/82
	Marine Drilling	J. Storm XVIII	"	12/82
	O & U Drilling	Nordrill II	"	1/82
	Teledyne	Mobile 20	"	11/82
	Alfa Drilling	(unnamed)	"	1/83
Bethlehem Steel	Griffin-Alexander	Griffin-Alexander IV	Jackup	3/82
Sparrows Point, Md.	"	Griffin-Alexander VI	"	6/82
	Temple Drilling	Cheyenne	"	4/82
	Phoenix Seadrill	(unnamed)	"	7/82
Chicago Bridge & Iron	Dixilyn-Field	DF-77	Jackup	6/82
Pascagoula, Miss	Blocker Drilling	(unnamed)	Submersible	10/82
	"	(unnamed)	"	2/83
General Dynamics	Bailey & Shannon Inc.	Bill Bailey	Jackup	12/81
Charleston, S.C.	"	Bob Warner	"	12/81
	"	Burr Rayburn	"	4/82
	"	Herb Williamson	"	6/82
	"	Mark Jones	"	1982
	"	Mr. Webster	"	1982
Gulfport Shipbuilding	Perfordora S.A.	(unnamed)	Jackup	5/82
Ingalls Shipbuilding	Transworld Drilling	Transworld 72	Submersible	12/81
Pascagoula, Miss.	"	Transworld 73	"	2/82
	Bonito Offshore	Bonito I	Jackup	7/82
	"	Bonito II	"	4/83
	Chiles Drilling	Yucatan	"	12/81
	Global Marine	Glomar Main Pass I	"	11/81
	"	Glomar Main Pass II	"	1/82
	"	Glomar Main Pass III	"	5/82
	"	Glomar Main Pass IV	"	9/82
	Huthnance Drilling	Vanguard I	"	11/81
	"	Vanguard II	"	10/82
	Keyes Offshore	Keyes 302	"	11/81
	"	Keyes 303	"	7/82
Levingston Shipbuilding	Noble Drilling	Ed Holt	Jackup	11/81
Orange, Texas	"	(unnamed)	"	12/82
	Compania Perforadora	(unnamed)	"	5/82

2 — OFFSHORE DRILLING RIGS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981 (Con.)

Builder	Owner	Name	Type	Delivery
Marathon LeTourneau	Chiles Drilling	Seabee	Jackup	12/82
Brownsville, Texas	Global Marine	Glomar Adriatic V	"	8/83
	"	Glomar Adriatic VI	"	10/83
	"	Glomar Adriatic VII	"	1/84
	Penrod Drilling	Penrod 86	"	12/81
	"	Penrod 88	"	3/82
	"	Penrod 90	"	6/82
	"	Penrod 98	"	4/84
	Rowan Drilling	(unnamed)	"	12/82
Marathon LeTourneau	Penrod Drilling	Penrod 87	Jackup	6/82
Vicksburg, Miss.	"	Penrod 89	"	9/82
	"	Penrod 91	"	1/83
	"	Penrod 99	"	4/84
	Rowan Drilling	Gilbert Rowe	"	11/81
	"	Cecil Provine	"	2/82
	Rowan Drilling	(unnamed)	Jackup	12/83
	"	(unnamed)	"	11/84
	"	(unnamed)	"	3/85
	"	(unnamed)	"	1985
Vemar Shipyard	Atwood Oceanics	Richmond	Submersible	11/81
Channelview, Texas	Cliffs Drilling	(unnamed)	Jackup	10/81
	"	(unnamed)	"	12/81
	Penrod Drilling	Penrod 201	Submersible	3/82
	"	Penrod 202	Submersible	7/82
	"	Penrod 203	Submersible	11/82
	Macan Offshore	(unnamed)	Jackup	4/82
	Goldrus Marine	(unnamed)	Submersible	3/83

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981

Builder	Type	Navy Nos.	No.	Est. Contract Value, \$Mil.
Avondale Shipyards	Fleet Oiler	AO-178-9	2	\$144.0
	"	AO-180, 186	2	146.2
Bath Iron Works	Guided-Missile Frigate	FFG-21, 24, 26	3	178.2
	"	FFG-29, 32, 34	3	147.0
	"	FFG-36, 39, 42	3	209.9
	"	FFG-45, 47, 49	3	195.4
	"	FFG-50, 53, 59	3	—
Boeing Marine Systems	"	PHM-2	1	21.3
	Missile Patrol Hydrofoil	PHM-3-6	4	178.0
Derecktor Shipyard	Med. End. Cutter*	WMEC-905-13	9	350.0
GD-Electric Boat	Attack Submarine	SSN-699	1	428.0
	"	SSN-702-4	3	1,302.9
	"	SSN-705-10	6	2,605.6
	"	SSN-719-20	2	—
	Trident Submarine	SSBN-726	1	285.4
	"	SSBN-727-9	3	699.4
	"	SSBN-730	1	354.5
	"	SSBN-731-2	2	699.0
	"	SSBN-733	1	401.0

3 — MAJOR U.S. NAVAL VESSELS UNDER CONSTRUCTION
OR ON ORDER AT U.S. YARDS — OCTOBER 1, 1981 (Con.)

Builder	Type	Navy Nos.	No.	Est. Contract Value, \$Mil.
Ingalls Shipbuilding	Missile Destroyer	DDG-996	1	350.0
	Destroyer	DD-997	1	231.0
	Aegis Missile Cruiser	CG-47	1	287.8
	"	CG-48	1	298.0
Lockheed Shipbuilding	"	CG-49, 50	2	667.1
	Sub. Tender	AS-41	1	209.5
Marinette Marine	Dock Landing Ship	LSD-41	1	338.6
	Fleet Ocean Tug	T-ATF-172	1	8.4
National Steel & SB	Destroyer Tender	AD-43-44	2	347.0
	Cable Repair Ship	T-ARC-7	1	107.0
News SB	Attack Carrier	CVN-70-71	2	1,718.6
	Attack Submarine	SSN-712-15	4	388.0
Peterson Builders	"	SSN-716-18	3	380.8
	"	SSN-721-3	3	675.0
	Patrol Gunboats **	F-PGG-2-9	8	70.1
Tacoma Boatbuilding	Salvage Ship	ARS-50	1	54.5
	Missile Patrol Chaser **	F-PCG-1-4	4	52.5
Todd-San Pedro	Med. End. Cutter*	WMEC-902-4	3	97.5
	Guided Missile Frigate	FFG-19, 23, 25	3	151.0
Todd-Seattle	"	FFG-27, 30, 33	3	147.0
	"	FFG-38, 41, 43	3	214.8
	"	FFG-46	1	67.7
	"	FFG-51, 54	2	
Todd-Seattle	Guided-Missile Frigate	FFG-22	1	50.4
	"	FFG-28, 31, 35	3	147.0
	"	FFG-37, 40	2	143.2
	"	FFG-44, 48	2	135.3
	"	FFG-52	1	

*For U.S. Coast Guard. **For Saudi Arabia.

SNAME-New York Honors Past Chairmen, Hears Paper On Hopper Dredge Design



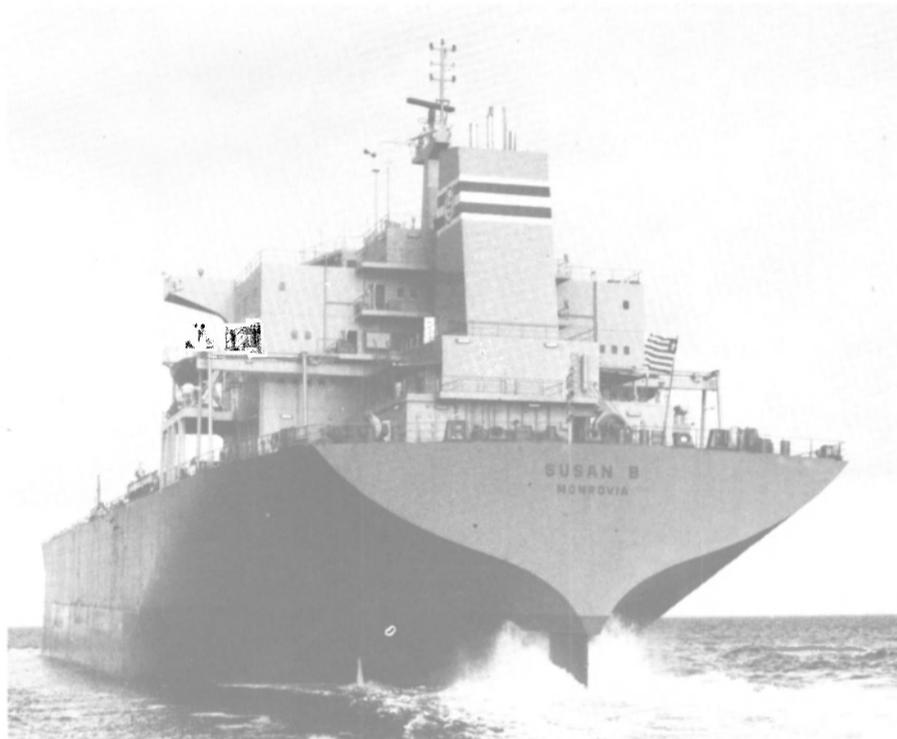
Officials at the first meeting of SNAME's New York Metropolitan Section, seated left to right: John Higginbotham, member of the executive committee, John J. McMullen Associates, Inc.; Curtis Nelson, meeting chairman, American Bureau of Shipping (ABS); Howard Blanding, papers chairman, ABS; Joseph Connors, secretary-treasurer, consultant; Eric Lithen, immediate past chairman, Marine Technical Associates. Standing, left to right: John Martin, author, Dredge Technology Corp.; Louis Mauriello, author, consultant; John Daidola, vice chairman, M. Rosenblatt & Son; Neil Reddy, chairman for 1981-82, ABS Tech; William Garzke, publicity chairman, Gibbs & Cox, Inc.; and Richard Wahlenmeier, membership chairman, R.R. Wahlenmeier Co., Inc.

The New York Metropolitan Section of The Society of Naval Architects and Marine Engineers held its inaugural 1981-82 meeting recently at the Buttonwood Restaurant with past chairmen's night. The event brought back some 19 past section chairmen. Eric Lithen, the immediate past chairman, was the guest of honor and was presented a plaque by past chairman and now secretary of SNAME Robert Mende.

A technical paper, "Hopper Dredges and Certain Aspects of Their Design," was presented by John Martin and Louis Mauriello.

The paper described the physical and operational features of new hopper dredges, problems in their design, and important features of new hopper dredges which have been recently designed or constructed for private contractors and the Army Corps of Engineers. The paper highlights these complex but highly versatile craft which are essential in the construction and maintenance of coastal port channels. Particular reference is given to regulatory requirements, an important consideration in the design of these ships.

New Fuel Efficient Panamax Bulk Carrier Christened At Burmeister & Wain Shipyard



Burmeister & Wain Shipyard, Copenhagen, has delivered the M/S Susan B, the fourth of the yard's fuel efficient Panamax bulk carriers of approximately 64,000-dwt. The vessel was built for Eljay Shipping, Inc., Monrovia, Liberia, and named by Mrs. Jane MacMichael, wife of Ethan MacMichael, group vice president, Philipp Brothers, USA.

Great interest has been shown in this new type of Panamax bulk carrier, primarily because of the low fuel oil consumption of about 37 tons daily at an average speed of 15 knots.

Burmeister & Wain Shipyard has an additional 13 bulk carriers of this type currently on order.

The ship is provided with seven large almost identical hatches with inclined hatch coamings and McGregor hydraulically operated steel hatch covers.

Holds 1, 3, 5 and 7 can be utilized for the transportation of ore.

Water ballast is carried in wing tanks, bottom tanks, in fore- and aft-peak and in hold 4 — a total water ballast capacity of 30,400 tons.

The ship is equipped with the most up-to-date navigation instruments: Loran, radio direction finder, radar, satellite navigator, autopilot and gyrocompass.

A Loadmaster is installed on the bridge, along with instru-

ments for remote control of the main engine, to permit unmanned engine room operation.

The main engine consists of a five-cylinder long-stroke engine, B&W type L80GFCA, with an output of 12,600 bhp at 90 rpm. The auxiliary machinery consists of two B&W engines, type 5T23-LH, each powering a generator of 500 kw and a turbogenerator of 500 kw.

A sound insulated control room is located, with control instruments for the machinery, in the engine room on the port side.

The steering gear is of the rotary vane type. The B&W type spade rudder is 44 square meters and weighs approximately 90 tons. It can be turned from 35 degrees in one direction to 30 degrees in the other in 28 seconds.

M/S SUSAN B	
Length, overall	738.2 ft.
Length, between perpendiculars	701.3 ft.
Breadth, molded	105.8 ft.
Depth, molded	59.1 ft.
Draft, maximum	43 ft.
DWT	64,000 tons
Main Engine	B&W 5L80GFCA at 12.6 bhp
Auxiliary Engines	(2) B&W 5T23LH and Turbogenerator
Speed, loaded	15.4 knots
Hold capacity	79,100 m ³
Cruising range	21,500 nautical miles

Free Color Wall Poster Features Full Crane Line Of Marine Packings

The new full line of mechanical packings is featured on a colorful wall poster, "Packing Recommendation Chart," suitable for use in office and shop. The John Crane® Rite-Pak™ packing line from Crane Packing Company is

displayed in an easy-to-read format. Non-asbestos and asbestos products are included, listing packing styles, temperature and pH ranges, and services.

Non-asbestos packings have temperature ranges up to 1000° F (538° C) and pH ranges from 0 to 14. To obtain a free copy of the chart,

Write 36 on Reader Service Card

**Publish Brochure On
Kockumation's Cargo
Distribution Calculator**

A six-page brochure defining the capabilities of its Loadmaster D50—an advanced digital calculator designed to meet modern cargo handling requirements—has been published by the ma-

rine division of Kockumation AB, Malmo, Sweden.

The brochure contains text, photographs, and line drawings, plus a table of specifications for the digital microcomputer. The brochure describes the wide range of calculations the instrument can provide for use either aboard ship or on shore.

U.S. Kockumation representative and service center for the East Coast and Great Lakes is Nav-Com of Deer Park, N.Y.; on the West Coast it is Collins Marine Corp. of San Francisco, Calif.; and on the Gulf Coast it is Maricon Instruments, Inc., of Gretna, La.

For a free copy of the brochure, Write 37 on Reader Service Card

**Saudis Order Four
Ro/Ro's From Kockums
For \$236 Million**

Kockums Varv, AB, Malmo, Sweden, has been awarded a \$236-million order by the Saudi National Shipping Co. to build four large ro/ro vessels.

The ro/ro's are the largest of their kind in the world at 38,500 dwt each, with a capacity of 2,000 20-foot-equivalent units. The vessels are scheduled for delivery from the third quarter 1983.

The Saudi National Shipping Co. currently operates two 23,000-dwt container and ro/ro vessels on its Middle East-U.S. service where the new vessels will trade.

**Name John C. Trickey VP
At Noble, Denton Assoc.**

Noble, Denton & Associates Inc., Houston, marine consultants and ocean engineers, a subsidiary of Noble, Denton & Associates Ltd. of London, recently announced the appointment of **John C. Trickey** as vice president. Mr. Trickey transferred from the London office where he was manager of engineering, and in his new role shall be responsible for all areas of the company's engineering activity. Mr. Trickey has been extensively involved in the offshore industry since 1973 in engineering, construction, and operations.

**Literature Available On
New Electro-Nav EN-RTAG
2-Tone Alarm Generator**

Electro-Nav president **Robert E. Negron** announced recently that his company has introduced the EN-RTAG, a new compact, low cost, automatic two-tone alarm signal generator which meets all pertinent IMCO and FCC requirements for radiotelephone-equipped vessels.

FCC regulation requires every U.S.-flag vessel over 300 gross tons be equipped with a two-tone alarm signal generator which can be connected to a radiotelephone transmitter for transmission of distress alarm signals on the 2182kHz voice frequency channel.

The EN-RTAG complies with all the requirements of FCC DOCKET 80-87 and the new proposed IMCO specifications, including frequency and signal duration tolerances, permissible intervals between signals, and signal amplitude radios. It is fully adaptable for use with any radiotelephone transmitter approved by the FCC for transmission of distress signals on 2182kHz. The unit is also approved by Liberian Bureau of Maritime Affairs.

For additional information on Electro-Nav's new EN-RTAG and other equipment designed to meet the provisions of IMCO Resolution A.383,

Write 26 on Reader Service Card

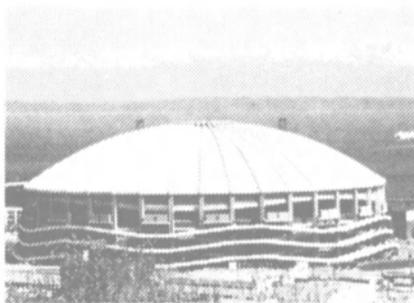
New Career Opportunities In Seattle, Washington

Why Washington?

Washington State has over seven national forests, two major mountain ranges and a seemingly endless assortment of lakes, rivers and beaches. Our state is a prime area for uncrowded skiing, hiking, fishing and other outdoor activities. The mild climate makes many of these activities practical on a year round basis.

Why Seattle?

Seattle offers a blend of business, culture and sports activities. One of America's "most livable cities," Seattle is located between the Olympic and Cascade Mountains. It offers water sports, over 400 parks, three large lakes, theaters, restaurants, excellent schools, "old fashioned" real estate values and eight professional sports teams.



Why Lockheed?

Lockheed Shipbuilding is small enough to provide a working environment of informality, personal contact and supportive co-workers. The accent lies on responsive management which prides itself upon respecting the value and importance of each employee. Lockheed holds a contract from the U.S. Navy to build the first of a new class of

amphibious assault ships. We anticipate that contracts for additional ships of this class will assure a high level of employment by the company through the 1980's. Lockheed is your opportunity to work with a true working team where your skills are recognized and the work is challenging.

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The above positions require marine experience.



Excellent fringe benefits include company paid medical, dental, life insurance and retirement plans, holiday and vacation benefits and savings plan.

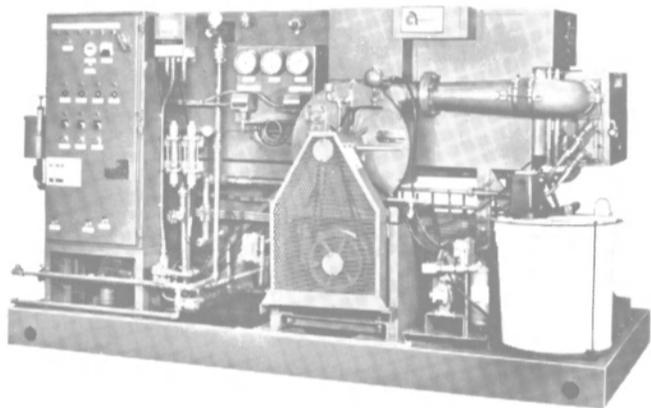
For immediate consideration, send your resume or letter with salary history to: **Personnel Department, 2929 16th Ave. SW, Seattle, WA 98134. (206) 292-5604.**

An equal opportunity employer m/f/h.

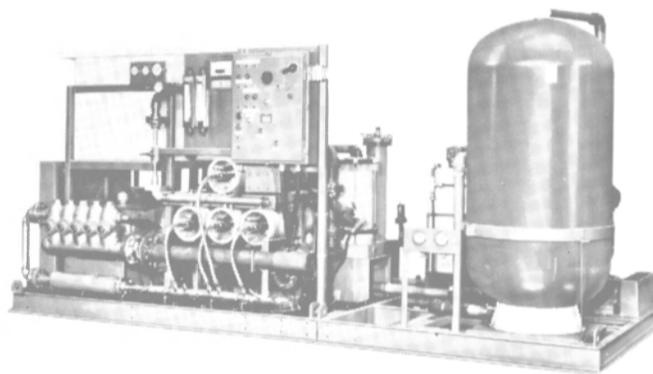
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Shipbuilding and Construction Company
"Superior Ships by Superior Craftsmen"

Only Aqua-Chem offers all these choices for your offshore/marine fresh water needs.

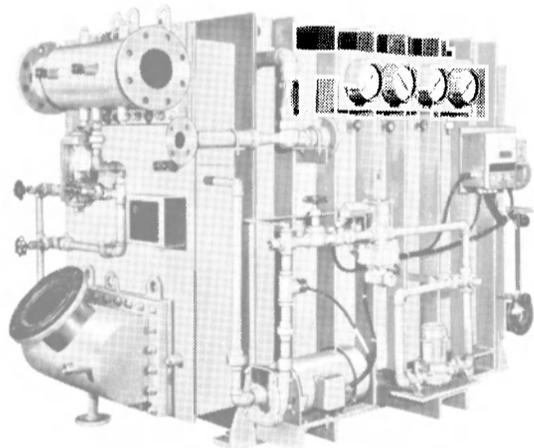
Vapor Compression. Heat Recovery. Reverse Osmosis. And Two-Stage Flash Distilling. Whichever is best for your operation, Aqua-Chem can supply it — from ready stock for fast delivery. We also offer a no-obligation engineering evaluation to help you make the best choice possible. Whatever your saltwater conversion needs, let us put our experience and reputation as "The Offshore Water Company" to work for you.



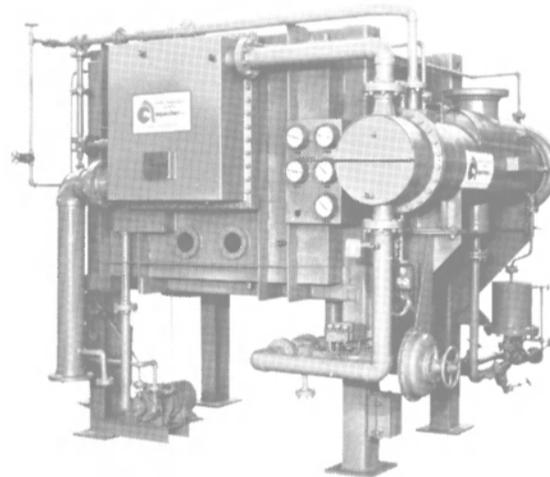
Vapor Compression Units Standard sizes: 100, 200, 300, 400, 600, and 1200 GPH; larger sizes available to 250,000 GPD. All models driven by electric motor.



Acro-Pac® Reverse Osmosis System with hollow-fiber type module is a complete packaged system for producing potable water from seawater. Includes pre-treatment and cleaning equipment, chemical feeder and turbidity separator. Standard sizes range from 5,000 to 25,000 GPD with larger sizes available.



Waste Heat Recovery Evaporators utilize diesel engine's jacket water or steam for efficient use of energy that might otherwise be wasted. Supplied in complete packages — 200 to 1000 GPH.



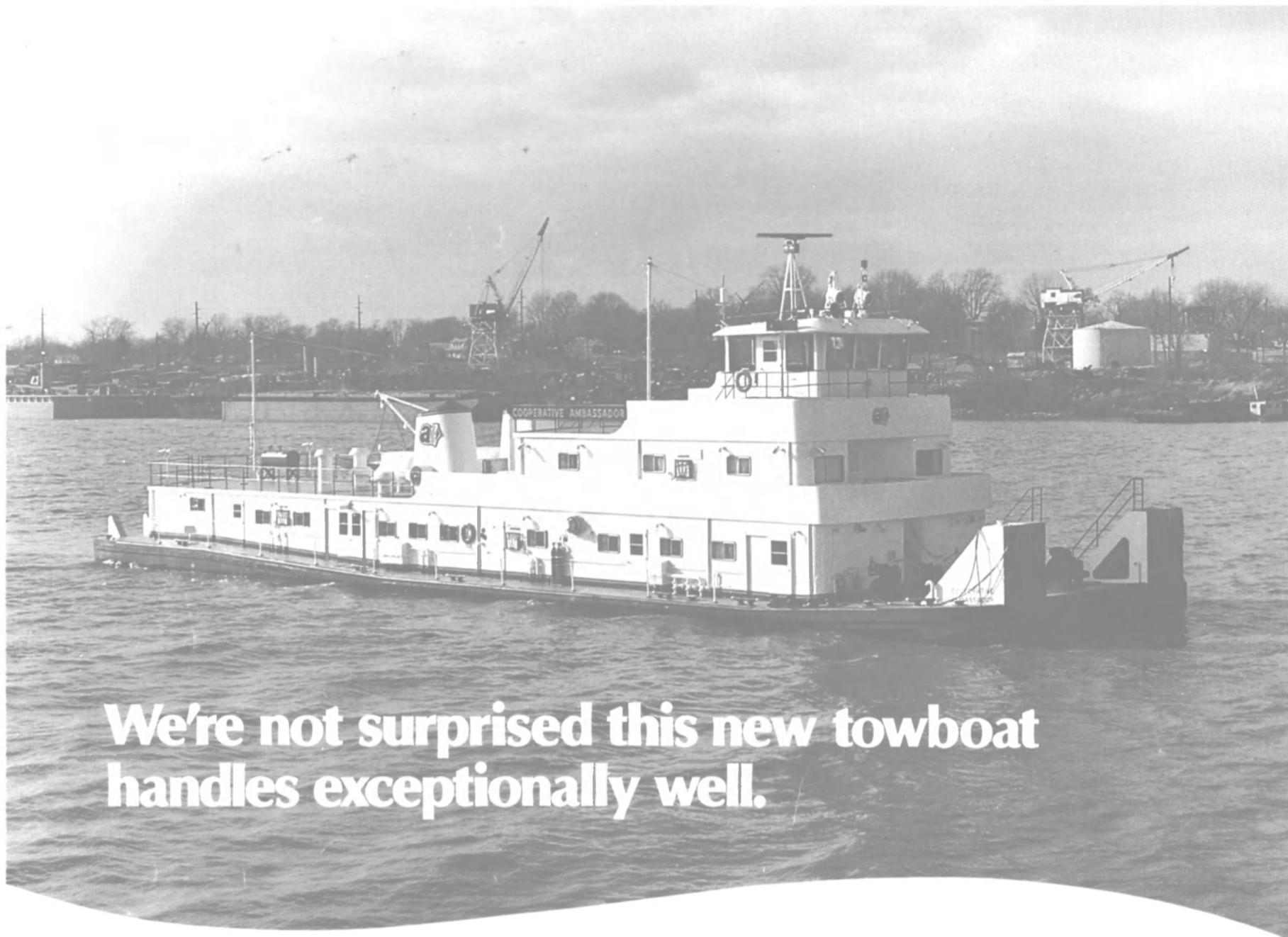
Two-Stage Flash Distilling Plant evaporates water at temperatures well below the atmospheric boiling point. Ensures scale-free, efficient operation. Sizes: 8000 to 100,000 GPD.

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WT81-120



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But we were surprised to learn it's operating 10% ahead of performance expectations.

The 4200-hp Cooperative Ambassador was built for Agri-Trans the same way we build all Jeffboat vessels—with steadfast dedication to quality.

It has a 5/8" hull and a double-bottom engine room. But such durable construction should come as no surprise. All Jeffboat towboats are assembled with the heaviest, thickest and toughest hulls of any towboat built for service on America's inland waterways.

Besides its durability, Agri-Trans was very impressed with the Cooperative Ambassador's excellent maneuverability.

But we're not surprised. All Jeffboat towboats handle exceptionally well.

We were surprised though when Agri-Trans told us about the Ambassador's performance. The new towboat is running 10% ahead of its scheduled workload.

That's some accomplishment even for a Jeffboat towboat.

To learn how we can help meet your water transportation needs, contact: Jeffboat Incorporated, P.O. Box 610, Jeffersonville, Indiana 47130. (812) 288-0421.

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